













BOTANICAL GARDENS FOUNDATION

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NATURAL HISTORY

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January, 1954

25 Cents

# The Green Thumb

COLORADO'S GARDEN MAGAZINE





# CHERRY'S DIARY

## *Cherry Plans Her Garden in January*

*Introducing young and attractive Cherry Dendron who has just moved into a new, small home in a new community of "beehive" houses on the edge of town; her young husband Red Dagwood Dendron who is known for his loud bark; her father Dr. T. H. U. Green, M.B., director of the local museum and authority on all natural sciences; her mother Paris Green, society butterfly and critic of modern art; her father-in-law Phil O. Dendron, a retired farmer, and her mother-in-law Rhoda Dendron housewife extraordinary with a knack for growing house plants.*

Jan. 2 "After all that nice, warm, sunny weather that we had before Christmas its hard to take this cold. That poor little lonesome linden tree that we set in our front yard last fall looks cold and miserable. I wonder if this weather has hurt it? I'll call Dad and see what he thinks." . . . "He told me that it was not usually the cold that killed things here in the winter, but the hot sun that we humans enjoy so much. He warned me that I should be sure to wrap the trunk of the tree to avoid 'winterburn' from the hot sun and dry air, and he also told me to check the ground around it for moisture if it did not snow a lot soon and the ground was not frozen. Poor thing, I'd like to bring it indoors or put earmuffs on it."

Jan. 3. "Red was home all day today and ranting around the house like a caged tiger. Too bad that it is too cold to get outdoors. I tried to get him to look at some of the new seed catalogs and garden magazines that have been coming lately and help me plan some nice things for our grounds next spring. He said that that was stuff for women, that he was too busy making a living to bother with that and he needed his rest on week-ends. I'll bet that he gets spring fever too and helps outside when the weather warms up. We will not have much money to spend on landscaping and so will have to be careful what we buy. I saw one ad offering 100 tulip bulbs for \$1.98? I can't lose much on that, and there was another telling about what a nice shade tree the Tuliptree is and it is cheap too."

Dad Dendron came in to get warm and saw the ads I was looking at. He said that it was too late to plant tulips and also that there was no chance of getting anything worth planting for such a small price. He also told me that Tuliptrees do not ordinarily grow well here, and suggested that I see a local nurseryman who knew what would grow here before I spent any of my small garden budget.

While Dad Dendron was here I asked him to look around the yard and tell me what to do in spring to get ready for putting in more lawn. I'll not stand another summer with all that dust blowing around and mud being tracked into the house every time it rains. He said that there was little frost in the ground now and he would advise me to get the soil ready at this time for next spring's planting. The folks that we bought the house from said that there was good soil here but Dad Dendron thinks that most of the good top soil has been bulldozed off and that only the poor subsoil is left (except for a few truck loads of rubbish thinly covered with a few inches of dirt). We have little money to spend on a lawn but he says that we should remove that rubbish and plow in a lot of good manure now even if we can only put in half the lawn next spring.

Of course his farming experience tells him that plants can only grow



well in good soil. My own dad told me once that soils in a region of little rainfall like this seldom had much humus (decaying vegetable matter) in them and it was very important to work in manure, peat, compost and such. This gardening business is not as simple as I thought.

While Dad Dendron was prowling around he also noticed that the soil around my little tree was dry and the little patch of lawn that we put in last fall was drying up. I thought that it would hurt things to freeze up wet but he says that the most damage is done when things freeze up dry and when the hot winter sun sucks the moisture out of them.

Jan. 9. I was just getting my morning work done today when a nice man stopped at the door and asked if he could help me with planning my garden for next spring. He was so nice that I let him sell me a lot of things that I'm almost afraid to tell Red about. I'll check with Dad first. After talking with Dad I'm more than ever afraid to tell Red what I signed up for. I'll just save enough out of my grocery money to pay for the things when they come next spring. Dad said that the Rugosa roses might grow here but that they did not generally like our alkaline soil. He said that the tree roses do look nice but that they will not live through winter unless laid down and completely covered with soil. The Sycamore tree that the nice man said was such a fine thing I found was a borderline tree for hardiness here, and the weigelia shrub only occasionally did well here. The pair of little spruce that I got for the front of the place, I guess can be set in the back instead, for he says that they will soon get too large in the front of the house. I suppose that I should have dealt with some established firm who knew what things would grow here instead of listening to that nice salesman.

Jan. 16. Red was home all day again today and the weather was nice outside so I took him for a little ride to see a nice stone wall and little flagstone platform that would (with a little modification) just fit in our yard. I got him all enthused and now he is throwing dirt around like mad digging a foundation for our wall and platform. It is good to have him out from underfoot, though I suppose he will want to eat like a horse tonight.

Jan. 17. Mom was over today raving about some things she had just seen at the art museum. She wanted me to get an ironworker to make a design for our front gate. I'll just wait a few weeks until she cools down then maybe we can get a design which is really beautiful rather than just "modernistic."

Jan. 24. Mother Dendron stopped by today and had hardly taken off her hat until she discovered what she called mealybugs on that coleus plant that I salvaged from the garden and potted last fall. She put the plant in the bathtub and carefully washed each leaf with a soapy rag and then rinsed it off. She told me to watch for some of the cottony little insects to come back and touch each with a toothpick dipped in alcohol. It seems that there are pests to bother almost every plant. How some people have such nice plants I don't know. They just must have a green thumb.

Jan. 30. Dad stopped in today and brought me a little book that told all about fertilizers, why some elements were needed here more than others and which form of chemicals were most economical to buy. I hate to study but if I am to have a good garden next summer I guess I had better learn

something about it now. . . . Three hours after I started that book on fertilizers I suddenly discovered that it was time to stop and get some dinner on the table. It was really interesting to know how plants grow, what chemicals they need and how to apply them to be most effective.

Dad told me that I should start a garden scrapbook now and put in all the ideas about plants, care of plants and good garden design that I see in magazines and newspapers. When Red comes home tonight I'll surprise him with all the new scientific names I've picked up in my reading today. I'll bet that he will think that he married a pretty smart gal after all.

## FLASH

### THE TIME FOR ACTION IS NOW

Do we want our National Parks and Monuments, that are set aside for the benefit of all citizens, spoiled for the benefit of a few? That is the question that you have a chance to help decide.

The Reclamation Bureau and the Secretary of the Interior have approved the upper Colorado Water Plan, including the building of the Echo Park Dam in the Dinosaur Monument.

Actually the estimated \$176,000,000.00 that it would take to build this dam would build several smaller dams higher up our rivers where the water would be of some use to Colorado and little of scenic or recreational value would be destroyed. Or, better yet, a small fraction of this amount, spent to prevent erosion by reseeding, replanting and other conservation practices would more effectively reduce the silt in the Colorado and Green Rivers and help to make their flow more regular. Actually the water stored in the Echo Park dam would be of little use to Colorado. The Cross Mountain dam, for instance, offers more efficient use of water at one-third the cost, and there are other dam sites which may allow slightly more evaporation but otherwise would be much more useful and efficient and can be built at less cost.

IT IS NOT NECESSARY TO FLOOD THE MAJESTIC CAN-

YONS OF THE GREEN ANI  
YAMPA RIVERS to get sufficient control and use of the water in our Upper Colorado Basin.

Early in January the President's recommendations will be made up. The Bureau of the Budget will pass on suggested expenditures and their recommendations will go to Congress for approval and appropriation. Write or wire the President AT ONCE telling him that you do not approve of this invasion of Dinosaur Monument and the building of the Echo Park Dam. Also write your friends and ask them to write to their friends and to government officials that they know and who might have influence.

We, who have so much to lose, must make ourselves heard, for those who hope to profit from the building of these immense dams, if left alone, will make more noise than all the millions of us put together.

There is more now at stake than just the invasion of this one Monument in Colorado, for on how the question is decided depends the future of other National Parks and Monuments where plans have been made to ruin them by commercial developments. Do we want the Reclamation Bureau to always continue to be the favored child of the Department of the Interior while the National Parks is treated as a stepchild?

The time is short. Write today.



# The Green Thumb

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*Drawing on front cover by Pauline Steele.*

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## THE COLORADO FORESTRY AND HORTICULTURE ASSOCIATION

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1355 Bannock Street                      •                      Denver 4, Colorado                      •                      Tabor 3410

## LANDSCAPING

is the simple name for the simple new course given by the Extension Department of Colorado University under leadership of M. Walter Pesman, landscape architect.

If you need straightforward advice on landscaping your home, spend ten dollars and learn how to do it yourself. What should you plant and where? How can you keep down expense in outlay and in maintenance? Where should you buy plant material? What is a reasonable price to pay for having the lawn put in? Or should you do it yourself? Where to locate that patio? How to achieve individuality and the "new look"?

These are problems which beset hundreds of home owners around Denver and in the state. You can get "free" advice from plant peddlers—advice that benefits the peddler above all—or you can learn enough in ten lessons to order what you really need—from nursery and seed store—and benefit yourself. Learn how to make your own landscape plan under the guidance of a practical landscape architect.

The time, from 6:30 to 8 p. m. (on Wednesdays) has been set to fit the people who want to keep the evening free. Pick up a bite to eat in town, go to Fourteenth and Glenarm for the class and get home early. When you are through, March 31, you will know all about landscaping your home. All? well—*almost* all! You will know about the best trees to plant, flowering shrubs, bulbs, perennials and annuals and you will have learned not to plant tall delphiniums in front of low Euphorbia polychroma. Scared? You'll be surprised how easy it can be. And how much fun you'll have.

It all starts Wednesday, February

3, '54. And, by the way, did you read the article on home planning in this month's Green Thumb? Maybe you won't need the course after you have read it. What do you think?

## WINTER STUDY FOR GARDENERS

A course entitled "Plant Culture for the Home Gardener" will be offered again this winter by Dr. Mordecai L. Shubert, a fellow Green Thumb. His course will be offered through the Community College of the University of Denver. Class meetings on Tuesday nights from 6:00 until 8:00 P. M. will cover the fundamental principles of plant growth, growth requirements, effects of climate and soil, and how to use this knowledge in growing better plants, whether in pot culture or garden culture. Those who wish to take the course without college credit may register on January 4 or 5 at the Community College desk in the Field House on East Asbury at South Gaylord, or they may register at the Adult Education Center, 211 Fifteenth Street any time before six o'clock on January 12. The first class meeting will be held on January 13 at the Civic Center Campus. The course may also be taken for two quarter hours of college credit under the credit course name "General Horticulture." Both credit and non-credit students meet together and cover the same subject matter, but examinations are optional for non-credit participants.

### AFRICAN VIOLETS TO ZINNIAS

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## Colorado Forestry and Horticulture Association

Organized in 1884

*"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to make available correct information regarding forestry, horticultural practices and plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."*

### OFFICERS

President.....Fred R. Johnson  
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## WHY NOT TOOT OUR OWN HORN?

After ten years of trying various methods of securing enough income to do the work of the association it becomes more and more evident that we must always expect to balance our budget by donations and benefits such as the auctions and garden tours. So much of our work is for general community benefit and hard to charge for. If we raised our minimum dues we would set them at about \$8.50 to cover the cost of the services that we give, and if we reduced the amount of services it would have the same effect of causing a large proportion of our present members to drop out. If we had a large increase in membership we could charge enough for our advertising to pay for the cost of publishing the Green Thumb.

Those who have been thinking on the problem have agreed that the middle of the road policy is best and we will continue to publish as good a magazine as our income will permit. During the coming year we hope to have various organizations such as the Men's Garden Clubs and Rose Society take over the editing of one issue, and will try to bring it down to earth, with the idea of helping the thousands of new home owners with their garden problems. We will

also offer for the first time an introductory membership of 4 months for \$1.00.

This is where you come in. You know of many new home owners who should have the help that we give. Get them to send in a trial membership for \$1.00. If each present member does this we should have a very nice increase in the membership and be able to help more people. We have probably been too modest in the past. We have something to offer. Let's tell others about it, AND DO IT NOW.

## ANNUAL DINNER FEBRUARY 15

This annual dinner and election of officers will be an especially gala affair as it is the tenth anniversary of the Colorado Forestry and Horticulture Association. There is being arranged an elaborate skit where the events of the past ten years will be shown and the objectives for the next decade will be given.

The place will be the Denver Chamber of Commerce Bldg. at 13th and Welton, the time 6:30 P.M., February 15th. Tickets will be \$2.50 including tax and tip. Come, bring your friends. Have a good time and learn what the Association has done and what they plan to do.





## FIRST THINGS IN PLANNING YOUR HOME GROUNDS

BY M. WALTER PESMAN

OUR new home was finally finished and we looked at it in a new light. It seemed so naked, with nothing on it—nothing except a heavy mortgage, that is—almost immodest. Something had to be done, and done fast, we thought.

That is the feeling of literally hundreds of new home owners all over the region. And then comes the shiv-

This article, with its pictures and all, hopes to take away that fear. Really, with a bit of common sense landscaping is not complicated.

Design, after all, is nothing else but orderliness. And orderliness means: a place for everything and everything in its place. A cluttered-up yard, on the other hand, is never beautiful.

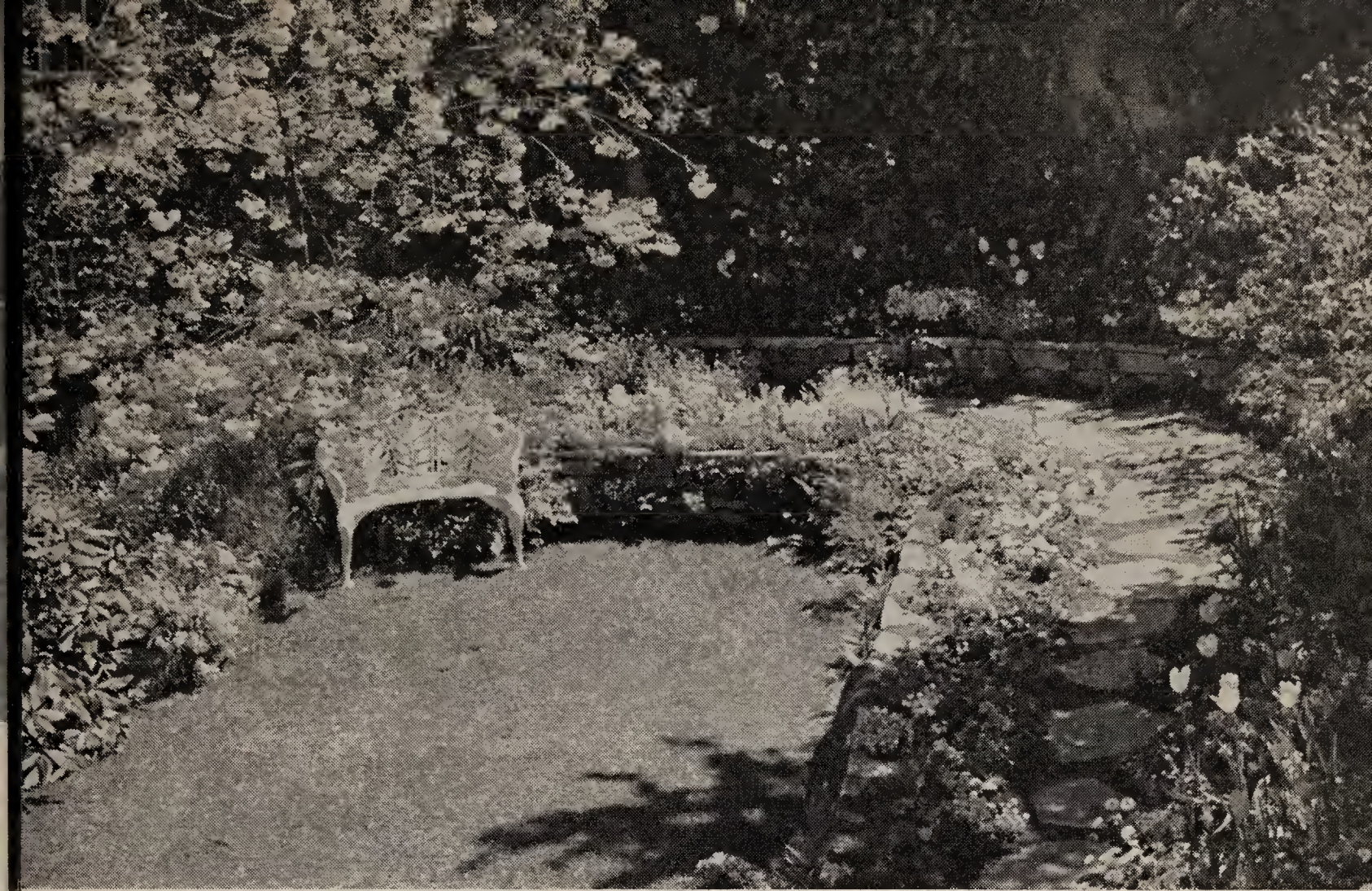


ery fear of not knowing how to start. Landscaping seems such an intricate thing, and we are awed by our ignorance about what plants to use.



Let us sit down and think it through. What do we want in our garden anyway? Here are some of the answers.





*"I want an intimate, private place to enjoy the out-of-doors."*

*"We must have a good setting for the house, creating a picture."*







*"A garden means growing flowers to me."*



*"Don't forget a little spot for strawberries and vegetables."*



*"It might be fun to eat outdoors times."*



*A good view from  
the kitchen window  
makes dishwashing  
a pleasure."*



*"Modern living just begs for a patio—brick, cement, or stone."*

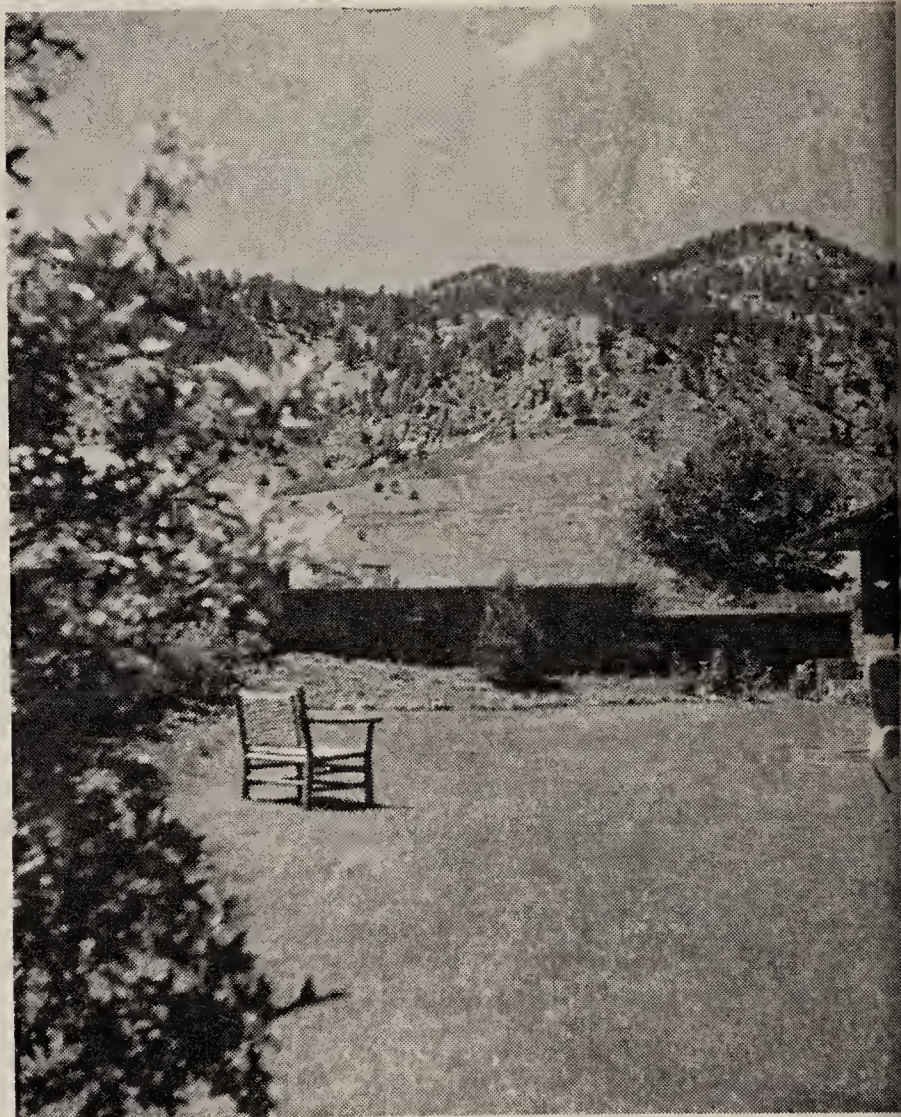
*"Gardening and sun-bathing are closely  
related."*



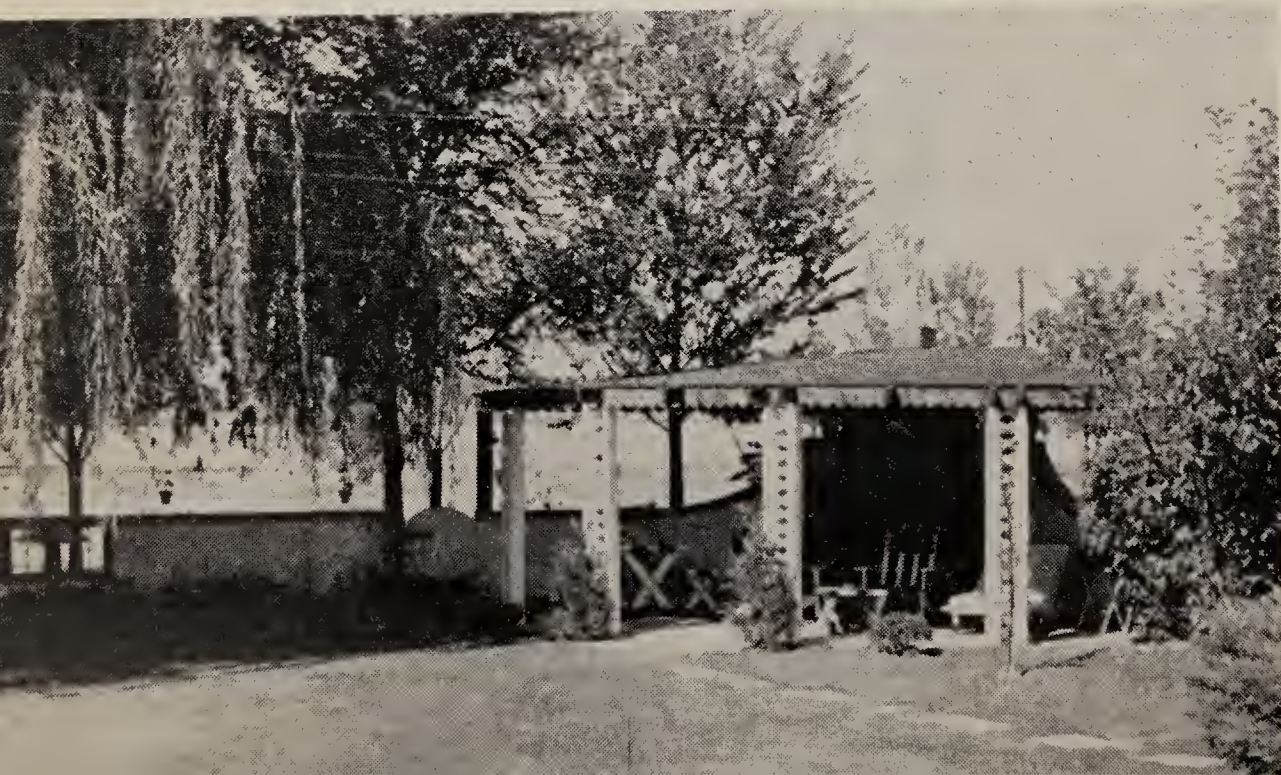




*"A beautiful out-view can best be enjoyed from the garden."*



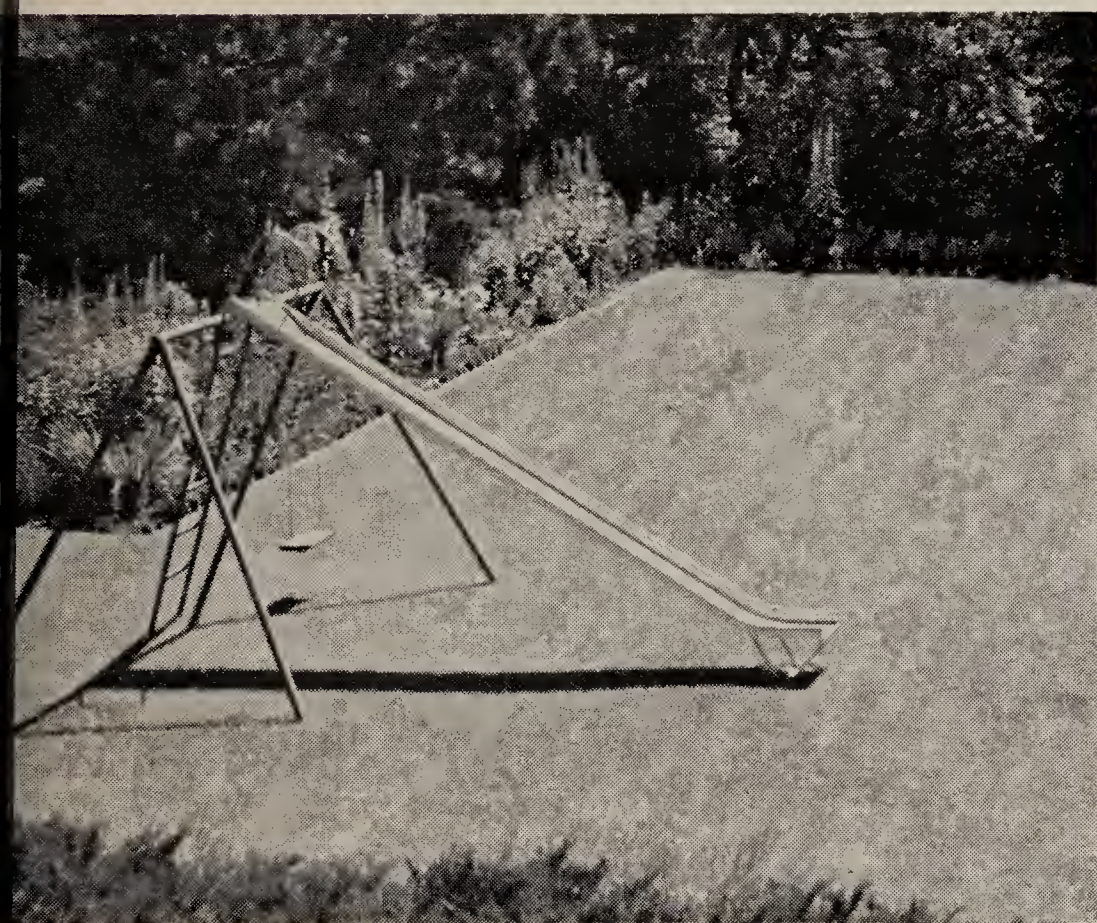
*"There should be a unity between indoors and outdoors."*



*"A separate summer house often fills a family need."*



*"Give me a place to put an easy chair, to relax" (father).*



*"Bars and swings for us," say the children.*

*"Give me a place to bury bones" (Rover).*







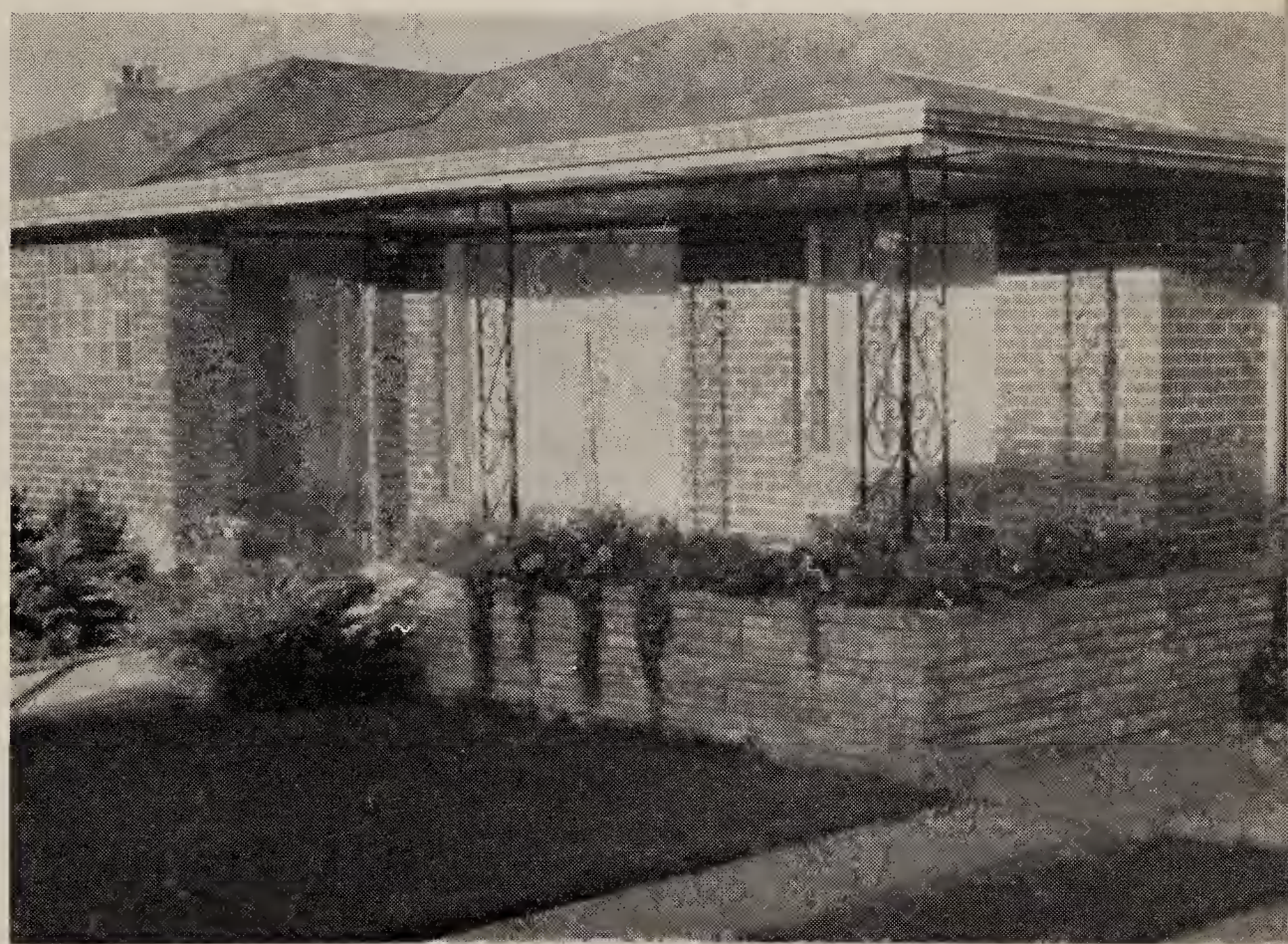
*"A pool, birdbath, or statuette would please me no end" (Big Sister who dabbles in Art).*







*"If you'll furnish me with proper tools and pots, and things I'll take care of the planter boxes" (Teen-age brother).*



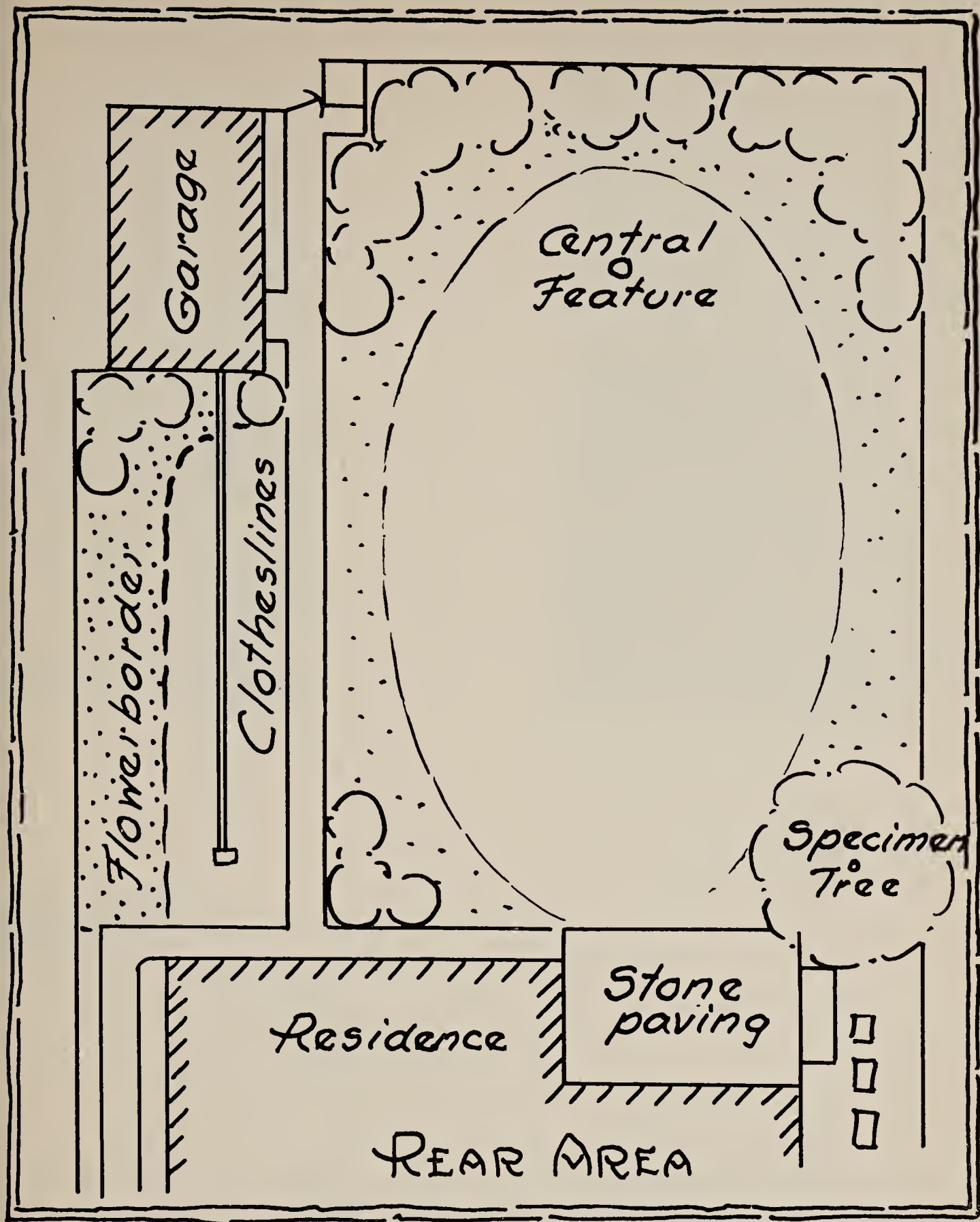
*I must have a place to hang up clothes, with a dry walk underneath" (Mother).  
 "What, no sandbox for me?" (Little Johnny).*











*may be used to draw up a plan, to scale, including all wanted features.*

fences, walls, shrub groups.

Convenient walks to and around the house.

And for your special wants, such things as playground apparatus, dog yard, a rose garden, birdbath, a pool fountain or what not.

At the end, a few hints that may save you trouble. Use more of the smaller trees and shrubs: they are in better scale with the modern house.

A home that is hidden by trees and evergreens has no chance. Whenever possible, create different levels in your garden; steps are intriguing. Provide a hospitable entrance to your home.

And, last of all: let your home and garden represent **YOURSELF**. Just because your neighbor does a certain thing, you don't have to do likewise. The most individual garden is often the most beautiful garden.





*(Above) Use more of the smaller trees and shrubs: they are in better scale with the modern house. Above is shown one good tree for this purpose, the Goldenrain tree.*

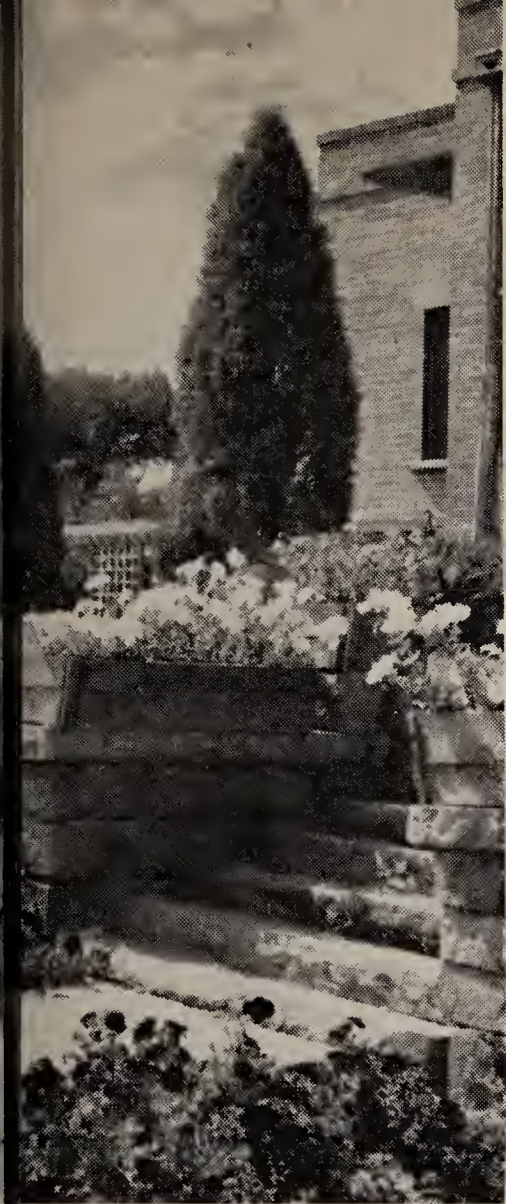


*Whenever possible, create dif*

*(Below) A home that is hidden by trees and evergreens has no chance.*







*garden; steps are intriguing.*



*Provide a hospitable entrance to your home.*



*Let your garden and home represent your self. The most individual garden is often the most beautiful garden.*





## HOUSE PLANT CARE

BY HELEN MARSH ZEINER

**T**O have healthy, attractive house plants is not difficult—a bit of common sense and a few simple rules solves the problem. Remember that house plants, like animal pets, are living things, and thrive on regular care. Since the house plant, unlike the pet, cannot make its needs known, it is easily neglected. Let your first step in striving for better house plants be a schedule of regular care.

Take a few minutes each morning to examine your house plants. Feel the soil—is it soggy? moist? dry? Water only the plants which feel dry to the touch—many house plant failures are due to over-watering—that irresistible urge to water every plant every day whether it needs it or not!

How to water is important. Whether you water from the top or from the bottom matters little if you thoroughly saturate the soil when you do water, and then let it dry out before watering again. If you water from the top, use enough to soak to the bottom of the pot—and be sure it has not merely run down between soil and pot. Conversely, if you water from the bottom, use enough to soak

up through the soil so that the surface of the soil becomes moist. Once the soil is thoroughly moistened remove excess water from the saucer so that the plant does not stand in water.

Occasionally wash the leaves of your house plants. If time permits, once a week is ideal. Washing not only serves the esthetic purpose of removing unsightly dust, but also improves the health of the plant by keeping open the minute pores in the leaves through which a necessary exchange of gases takes place. Common sense will dictate the method you use. A plant with many small leaves like ivy may be held under the faucet or washed with a spray. A large-leaved plant may have each individual leaf washed with a sponge or soft cloth—caution—support the leaf with your hand to prevent breaking it. Clear water is usually sufficient, but an occasional washing with soapy water followed by a thorough rinsing with clear water is beneficial. Red spider, one of the commonest house plant pests, particularly on English ivy, can be prevented by frequent washing. An infested plant can be rid of red spider by soap and water washing followed by a spray of nicotine sulfate. Repeat the soap and water every day and the spray once or twice a week until the pest is gone. Give particular attention to the underside of leaves.

Remember that all plants require some light, and in general, flowering plants require more light than foliage plants. If you feel that you must have a plant in that dark corner far from the window, move it into the light a few hours each day and put it back in its decorative spot before the family arrives home. An ideal plant for





That dark spot is the Chinese evergreen, *Aglaonema*, since it is extremely tolerant of lack of direct light.

What sort of soil should you use? In general, avoid either heavy clay or light sand. A good general purpose mixture is made of equal parts of sand and or vermiculite, peat or compost, and good loamy garden soil. This is easily modified depending upon the type of garden soil you have available.

Shallow cultivation with a stick or fork is beneficial, provided you do not disturb the roots. Keep the surface of the soil loose.

House plants will benefit from an occasional—perhaps monthly—application of fertilizer. There are many commercial fertilizers on the market which are convenient to use and give good results. Please follow the manufacturers directions as to amount and strength—many a house plant has been killed by too strong an application of fertilizer.

In selecting pots, try to find one with a drainage hole at the bottom. This permits excess water to drain away and there is less danger of the plant becoming water-logged than in the pot with no drainage hole. Either clay pots or glazed ceramic pots will give good results, but I believe that it is easier to maintain a plant in the porous pot. Use particular care not to overwater the plant in the glazed pot, particularly if it has no drainage hole.

Regardless of the type pot you use, put in the bottom a layer of drainage material such as pieces of broken pot or small stones or pebbles. Now add potting soil to bring the plant to the desired level, then fill the pot and firm (not pack) the soil around the plant. Leave room at the top to water.

Sometimes a plant needs to be repotted. If it is obviously too big for

the pot it is in, or if it is pot-bound (the roots having made so much growth that they cover the ball of earth as seen when the plant is slipped from the pot) the time has come to repot. If the roots are light-colored and healthy in appearance and you wish the plant to increase in size, merely put the plant in a size larger pot, disturbing the roots as little as possible. If, however, the roots are brown and discolored and the plant is large and scraggly, tear off the old roots and reduce the top accordingly. This plant may then go back into the same pot—or even into a smaller one!

A bit of pruning to control the size and shape of the plant is in order. If the tip of a young plant is pinched out when the plant is three or four inches high, it will branch out and be bushy. Pinch out the very tiniest leaf at the tip and the scar will be unnoticeable. In cutting back a branch, always cut back to the place where a leaf joins the stem, thus leaving no ugly stub.

Do not expect your flowering plants to bloom continuously. All plants require some resting period. We can often let our house plants rest during the summer, perhaps sinking the pots in a shady spot in the garden, and giving them less water and no fertilizer. Then we can stimulate them into active growth in the winter by bringing them into the house, increasing the water and fertilizing them.

If you are an amateur, you will probably find non-flowering plants easier to grow than flowering ones. Many of these plants have very attractive foliage and are just as lovely as blooming plants. Try one of these: *Nephtytis* (African evergreen), *Aglaonema* (Chinese evergreen), *Peperomia*, *Crassula* (Jade plant), *Philodendron*, Grape Ivy. The wax



begonia is a good flowering plant for the amateur to begin with. By following the few simple rules set forth in this article, your plants should thrive—and you will soon find yourself stepping out of the ranks of the ama-

teur and growing successfully the more difficult plants, such as the African violet.

Remember—maintain that regular schedule! Plants are living things—let's treat them that way!

## IS IT STILL TIME TO MULCH?

BY HENRY GESTEFIELD

**Y**ES, and double yes. As a matter of fact, now is the *very best* time to mulch trees, shrubs, berries and perennials and in-the-ground bulbs.

*First*, we *all* know that the purpose of mulching is *not* to keep plants, etc., from freezing, but to keep them *frozen* during the latter part of winter and early spring. Then the sun and our chinook winds thaw the ground during the daytime and the flowing sap is frozen night after night, which results in severe damage of the tissue or sap cells and tubes, causes drying of the bark and many times kills the damaged plant or tree. Late mulching will keep the pre-frozen ground at an even temperature and will retard early thawing of frozen ground and this consequently results in much later flowering of early bloomers. For ages, farmers and fruit growers in the "Old Countries" have put a heavy layer of stable manure around bearing fruit trees after the ground was frozen down deep, to hold the frost in the soil as long as possible and allow later flowering after danger of killing and freezing was over, and they always got a bumper crop of fruit and berries.

*Secondly*, this deep mulch around trees, shrubs, vines, roses, fruit trees, berries, perennials and bulbs-in-the-ground, will produce the *molds* so vital in making food for plant life available. Then the water from the wet snows and early deep watering will dissolve all the 17 minerals.

Molds produce millions of micro-organisms in the soil, which in turn produce nearly all the food for plants working 24 hours a day tearing down and decomposing, enriching our raw native soil with plant food, stimulant and tonic necessary.

*Thirdly*, later in spring, when the ground is completely thawed out and the real honest-to-goodness growing season has begun, spade the mulch into the soil real deep even though you may cut some shallow roots, where one root is cut, many new feeder roots will develop. (Root pruning). This spading into the soil of mulch will provide additional molds in the soil as compost or mulch decays and helps penetration of water into the richer minerals of the subsoils.

*Fourthly*, mulching in January prevents soils from drying out in our high and dry climate, especially if you neglected deep watering in late fall. If proper watering had been done and light mulching given early and heavy mulching in January, there would be no need of watering in the winter while plants and trees are dormant and should have a rest.

Have you watered your compost pit? Dry leaves in pit should be watered (soaked). Also put some layers of wet soil between layers of roughage to hasten decomposition.

Remember: The important gardening practices *Deep Watering and Proper Watering*.



# A PLANT FOR USE IN DENVER

## The Augustine Ascending Elm

BY SCOTT WILMORE

SINCE the canker disease has been killing the Bolleana and other poplars in the Denver and Plains area in recent years, there has been a great demand for a tree to take their place; something tall and reasonably columnar without too much spread, which can be used along driveways, for background landscaping, and for screening purposes. There is also a demand for a shade tree where there is limited growing area laterally. The answer to these problems seems to have been found in the Augustine Ascending Elm. It is a perfectly hardy, fast growing tree, and by the nature of its ascending habit of growth (branches growing almost vertically) it develops into one of the most beautiful of trees. The leaves of this tree are large and as the tree develops it has a stately and of majestic appearance. On August 22, 1953, there was a dedication ceremony honoring the parent plant of this tree at Normal, Illinois, and a plaque placed at its base by the granddaughter of the discoverer, Archie Augustine.

We have been growing and handling this tree for about three years now and I definitely feel it has its place in this area above all others. I know of one tree planted last fall that made a five foot growth on the center leader this past summer. Of course I do not claim that all of these trees will do that, but it is considerably faster growing than any of the other American Elm types. Its introducer, Mr. William Beaudry, makes many claims for this tree which we believe are substantiated by its performance in the Denver area. It is resistant to the Dutch Elm Disease

and Phleum Neucrosis; also, due to the upright growth of its branches, it has the ability to avoid breakage from early fall or late spring snows, which certainly is something to be considered in the Denver area.

Personally I think enough of this tree that we are trying to work up a large stock for availability to Denver and Colorado buyers in the next few years. I feel, and records disclose, that purchasers of this tree are more than satisfied with its beauty and majesty, and the older the tree gets the more the above applies. I feel the tree will prove its worth more and more once it is better known.







## ONE GOOD EVERGREEN

By W. B. NUZUM

I'M going to choose as my one good evergreen perhaps the oldest and most used, spreading juniper. *Juniperus chinensis pfitzeriana* is its proper name but it is more commonly known as just Pfitzer, or by nurserymen as "Pfitz."

I believe that one of the chief objectives of any good plant is hardiness and usefulness in the hands of the amateur. The Pfitzer will take shade or sun, poor or good soil, lots of water or very little, cultivation or none, no trimming or savage pruning, alkali or acid soil and is one of the most disease free evergreens. It will take more shade than other evergreens and therefore yields to being planted on the north side as a foundation plant, yet it will also take our winter sun (The Killer) and will grow wonderfully on the south-west corner. If you wish to "hold" it under a window of three feet above the ground, it is easy, or if you wish, it will "climb" up a wall six to eight feet or more.

Hedging may be made from Pfitzers. The low evergreen hedge in front of Horticulture House in Denver is of dwarf Pfitzers. It may also be trimmed into a globe or a square pillar (very formal) but must be trimmed often to be held in place. Another use is to place it in front of "those terrible gas meters" which stick out from a new home worse

than a Paul Bunyon sore thumb. It is advisable to stake up some branches so it will cover the meter quicker.

Did you ever see a Pfitzer stake upright like an upright juniper? It sure can be done. In fact go ahead and shear it into any shape you wish. I've seen it used as a fancy hedge six feet high in a very narrow street to screen for twelve months of the year. The chief objection to the Pfitzer is that it grows too fast for most of us and frequently gets too large.

Pfitzers have been planted as roadside planting and grew beautifully with no extra water other than what nature gave, after the first two or three years. In these cases they have often lived in alkali soil whereas in other extremes they have survived in low, wet, sour spots in gardens.

If your eaves drip, snow slides and ice forms in the winter, I believe the Pfitzer will stand up better than any other plant.

All your plants including "Pfitz" will be better, healthier, thicker and more beautiful if they are taken care of, so please learn to be a "good gardener."

I believe your requirements for these useful plants usually may be met thru your local nurseryman, but please don't get so enthusiastic about this fine evergreen that you plant Pfitzers only. We need variety.



## TWO HARDY BROADLEAF EVERGREENS

BY KEN WILMORE  
*of Green Bowers*

IN the constant struggle of the Colorado nurserymen to produce satisfactory new varieties of plant material, two broadleaf evergreens have come into their own.

The first one is *Mahonia aquifolium*, commonly known as Oregon Grape. This beautiful broadleaf evergreen has actually been used in this area for many years, but only in recent years has it been considered a recommended nursery item.

This beautiful shrub seldom will attain a height of over 4 feet. It should be planted on the north or east sides of buildings or in other locations that will give it some protection from the winter sun. It has deep, glossy, dark green, holly like foliage, clusters of bright yellow flowers in spring, followed by blue grape-like berries that are fairly palatable when ripe. The new growth is generally light green and often will turn to several shades of red along with some of the older foliage in the fall and winter. In the winter months, one can find nearly every shade of green and red on the Oregon Grape.

A smaller brother of the *Mahonia aquifolium* is also available. It is called *Mahonia Aquifolium Compacta*. It will seldom attain a height of more than 2½ feet, but bears the same description except for having smaller leaves and a more compact habit of growth.

In preparing a bed for *Mahonia*, one should work in large amounts of peat and humus to a depth of at least 2 feet, creating a slightly acid condition. Normal watering is required and very little maintenance is neces-

sary to keep this beautiful plant healthy.

Our second broadleaf evergreen is *Euonymus patens* (*Kiautschovicus*) or Spreading *Euonymus*. This beautiful shrub will grow to approximately 4 feet. It has striking glossy green ovate leaves, delicate white blossoms in the spring followed occasionally by an orange-red fruit that will hold all winter. The fruit resembles that of bittersweet.

When planted in a protected area (north or east exposure) the foliage will generally hold all winter. Sometimes *Euonymus patens* will defoliate under extreme weather conditions only to bud out in early spring with beautiful succulent growth. Defoliation apparently doesn't harm this plant because of the remarkable comeback it makes afterwards.

Beds should be prepared for your *Euonymus Patens* in much the same manner as described for *Mahonia*.

A striking example of *Mahonia aquifolium* and *Euonymus patens* when used in a planting can be seen at the medical office of Dr. Paul Issacson, 1510 Humboldt St. in Denver.

My wife, Helen, finds several uses for these items thru the winter, namely for center pieces around the holidays, and in an inverted rose bowl they are perfectly beautiful.

May I say that in places where too much shade is a detriment and the gardener is finding it hard to make other things grow, these two broadleaf evergreens will not only fill the bill, but make one of the most beautiful spots in the garden.



# CASH IN ON YOUR GROUNDS

BY SAM L. HUDDLESTON

*Landscape Architect*

WE often think of planned landscape development around a home as a luxury. All that is needed is something to cover the bare ground and perhaps provide a little shade. When thought of in this way landscape improvements can be classed as unimportant; nice but not necessary.

If this is true then why not place paint in the same category? Wallpaper, drapes, rugs and pictures as well we could get along without. But who would care to live in such a house?

But, we say, paint improves the place. An unpainted job would have little value as a piece of real estate when compared to painted places. That is a sound argument. Let's apply it to home landscape.

A case which I have had a record of is that of an agent for an adding machine company who bought from a carpenter a little place that cost something around \$2200.00. This was b.i. (before inflation). The house was small but attractive. The yard however was barren, poorly grassed, there were few trees and no shrubs. The new owner first had a plan made up by a professional designer. He had little to spend and he meant to make every shrub he planted count to the limit. Then he bought labor and materials amounting to about \$500.00 on the grounds and \$200.00 on the house. Within two years time he was of-

fered \$5,000.00 for the home. The outward appearance of the place had been so improved that his investment in landscape of not more than \$700.00 had increased almost 100%.

Another noteworthy case (also b.i.) is that of an old house in a western Iowa town where an expenditure of \$125.00 in shrubs and flowers, \$50.00 in planning and \$100.00 in labor on the grounds resulted in an increase in 18 months from \$3500.00, at which it did not sell, to a sale at \$4800.00.

These are but two examples. Most carefully developed home grounds will be others. Dollar for dollar there is probably no other improvement that one can put on his place which will add so much to the total value. Admittedly, first impressions are the most important and when one is examining a home with the idea of buying, the outside is encountered first. Curiously the landscape phase in home development is slighted. Persons who invest in a house costing \$20,000.00 will set aside \$400.00 for landscape. That may be enough to build a good lawn but little else. Had a reasonable amount been set aside for the grounds in a few years \$30,000.00 would not be an unreasonable figure, solely because of the growth of the garden and grounds.

Boards, brick or plaster start to deteriorate, be it ever so little, the minute they go into a house. On the

*Dormant Spraying for Scale on Shade Trees*

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On the other hand, investments in trees, shrubs, vines and flowers when based on good design, like investments in the chip stocks and U. S. Savings Bonds, will grow into greater values.

A home is nothing but a house on a lot, without trees and shrubs. Any real estate agent knows that a home that includes well developed grounds is much more saleable on any sort of market than a simple house on a lot.

Leaving out any thought of the personal pleasure a family will derive in having attractive and useful grounds, a home place that is inviting is just plain good business particularly in view of the increasingly large turnover in homes nowadays.

We are continually hearing of homes only three or four years old being sold at figures considerably above the brand new price, and wonder how some people are so lucky. Luck? No, landscape!

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## MEALY BUGS ON HOUSE PLANTS

*From The Shade Tree Digest as presented by Swingle Tree Surgery Company*

House plants, like trees and shrubs, often suffer from insect infestations. One of the common pests of such plants as coleus, fuchsia, fern, gardenia and others, is the mealy bug. Closely related to the scale insects, mealy bugs feed by inserting their beak-like mouthparts into the inner tissues of the leaves and stems and sucking the sap. They multiply rapidly, and unless brought under control promptly will severely injure or kill the plant attacked.

Fortunately, mealy bugs are quite conspicuous. Even light infestations can be detected easily by examining the under surface of leaves for their cottony egg masses and plainly visible adults. As they increase in number they may be found on both upper and lower leaf surfaces, and on succulent stems.

The adult female is about 1/6 to 1/4 inch in length, with short filaments projecting from the sides of her body. In egg-laying she exudes a cottony-white, waxy material in which some 300 to 600 eggs are deposited. These egg masses are usually located at axils of branching stems or leaves. The eggs hatch in about ten days, and the yellowish, young nymphs begin feeding. Shortly after the feeding starts, the nymphs begin exuding white, waxy filaments that cover the body and radiate outward from the sides. Under favorable conditions there may be one generation a month. They remain mobile during their entire life cycle, although becoming increasingly sluggish as they approach maturity.

One of the standard methods of controlling mealy bugs consists of

applying a spray mixture of nicotine sulphate and soap, which is reasonably effective when the insects are the crawler stage. White oil emulsions are effective, though caution must be used in their application since some plants are likely to be injured by oil sprays. Several of the newer synthetic insecticides provide excellent control, but since some of these are toxic to humans, extreme caution should be observed in their use. Where only a few mealy bugs are present on a plant, they may be picked off with a toothpick, or killed with an alcohol-saturated cotton swab. Washing the plants with water applied under as much pressure as possible without injury to the leaves may aid in controlling the infestation. Repeated treatments, regardless of the method used, are usually necessary if the infestation is severe.

---

## ROADSIDE DEVELOPMENT IS IMPORTANT TO COLORADO

On November 25th there was the first meeting of the revived Roadside Development committee of the A. S. D. association under the leadership of Walter Pesman. Fourteen people had been asked to serve on this important committee and of these nine were present.

The objectives were clearly indicated in a prepared statement given to all members by the chairman. They included: 1. Installation of roadside parking areas and roadside parks at logical sites. 2. Consideration of existing attractive features and distances in the location and construction of new highways. 3. Provision of shade trees where soil and water conditions will permit. 4. Erosion control seeding and topsoiling of raw



links along highways. 5. Shrubs planted to mark culverts and as living snowfences. 6. Appropriate plantings of shrubs between divided lane highways, in spots where needed for erosion control or beauty, and in odd left-over corners.

The committee felt that such a program was important to encourage the many tourists who come here to recreation and spend their money; and that it would make travel by residents and tourists alike more pleasant.

The work of the committee was divided into three sub-committees: Publicity, Contacts and Selection of sites for most urgent development. It was generally agreed that this was to be an action committee with all members doing their part to carry out the stated objectives.

The members of the committee included Clyde Learned, Harold Lathrop, Chas. Shumate, Donald Weese, Sam Huddleston, Mrs. Eleanor King, Mrs. Ed Honnen, Mrs. Frank Deal, Mrs. Katherine Crisp, Miss Rosa Schoder, Mrs. Thos. Shomburg, B. Detweiler, Ted Hitchings and A. Marshall, with M. Walter as chairman.

## ECHOES

From the Dried Drama Flower show held by the Home Garden Club of Denver last November at the Museum of Natural History. The first of its kind, the show had a wonderful attendance, about 5500 saw it, giving all visitors an insight into the fun of dragging home some of the materials pictured here—yucca seed pods, yarrow, prickly poppy, cattails, dock, bones! Let your imagination run riot and try some yourself. Many a garage looked just like these and as for husbands—well, we nearly lost some!



*"Yes, I can see your wife is getting ready for the dried flower show too. I can't get my car in our garage, it's so full of all this hay."*



*"Yes, tomorrow is the dried flower show, but can't you spare a few minutes to help me look through those finished arrangements and that stuff in the basement. I've lost Clarence."*

*Cartoons by Mrs. Pauline Steele.*

**Make your reservations now for the Tenth Anniversary dinner. There will be a good program. Tickets \$2.50 Inc. tax and tip. Feb. 15, at Chamber of Commerce Bldg.**



## NA LAAU HAWAII

By GEORGE C. MUNRO

The following extracts are from a story sent us by Frances Binkley, formerly from Boulder, Colo. It is interesting to note the increasing interest all over the world in preserving some of the native plants.—Ed.

VERY large areas of extremely interesting xerophytic or dry-land forests were evidently destroyed by man on all the islands of this group. Little more than remnants of these forests now remain. This class of land then became the *kula* (open land) of the Hawaiians. Part of the site of Honolulu and much of the cultivated lands of Oahu were at one time *kula* and no doubt they were forest-covered before that. The flora of the *kula* may have been the smaller plants of the more open spaces of the original forest. Some of them may have even preceded the forest. The *kula* is now mostly taken up with cultivation, grazing, buildings and introduced vegetation.

Large areas of land cannot be kept idle, withdrawn from use in supplying human needs, in order to save a few rare plants. But some plant species could be saved if those using the land profitably would devote a little time for scientific research apart from business, or even do it for sentiment alone. Surely it is worth while historically to save some of the original plants of Hawaii. Since 1918, I—with others—have been interested in some plan to save species of Hawaiian plants from destruction. That the various plans have not been fully successful is due principally to lack of interest where interest might be expected.

However, the tide of interest is now turning. There seems to be a general awakening to the necessity of saving the dry-land plants of the favored land. I rejoice in it. Though age has circumscribed my field of activities, I am able to make an attempt, with considerable cooperation from

others, to reproduce a forest representing that which no doubt covered much of the land now producing great part of the wealth of these islands, also an effort to establish an example of the vegetation of the *kula*, some plants of which may belong to an era before forests existed in Hawaii, in a place easily accessible to the people of Honolulu.

This I call "Na Laau Hawaii" (na: belong to; *laau*: vegetation, plants, trees or forest).

The present plan is to work this small area of about 3 acres into a representation, as faithful as possible of what the original dry forests of these islands were before man altered them, and also that of the open *kula* land which followed the destruction of the forests. It is planned to have Na Laau Nui traversed by easy trails and specimens of each species labelled with scientific and native names and an account of the uses to which the ancient natives applied them. Therefore, if this project, dedicated to the native plants and trees of Hawaii, is as successful as expected, it will be an easy source of information and recreation to the people of Honolulu and our visitors.

The main object of the activity, however, is to assist materially in saving from extinction plants endemic to Hawaii. Most of the present vegetation of that area, except that of the *kula*, is foreign to Hawaii, but can eventually be eliminated from the reserve without great expense and with little danger of a fresh intrusion. The rocky *kula* is mostly occupied with *pili* and *emoloa*, native bunchgrasses with which many of the plants of the *kula* were originally associated.





## A SEDUM GARDEN

THE rock garden illustrated belongs to Harry Keele, 814 Julian St., Denver. Five years ago Mr. Keele planted a few creeping phlox and some wild flowers and used some native rocks, later he acquired some sedums and became so interested in them he decided on a real rock garden. The front lawn at Mr. Keele's home is divided by a natural slope from his back lawn, this slope is about 10 feet deep, facing an east exposure it makes a natural setting for a rock garden.

Mr. Keele made good use of the library at Horticulture House together with help from Helen Fowler of Shadow-Valley and William Huffman, 315 So. Perry St. He now has over 100 different sedums and alpine

plants growing. He has collected seed and has plants growing from this collected seed from Japan, India, Switzerland and England. Mr. Keele finds it interesting to acclimate these strangers to our Colorado climate, this takes from two to three years. His ambition is to obtain seed from South America.

This rock garden is a beautiful thing to see, the colors of brown, grey, grey-green, blue, blue-green, tan, yellow, and different shades of red all harmonize and blend perfectly.

Mr. Keele will be happy to show his garden and give any information on these plants.

—C.R.



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## New Type of Street Tree

By S. R. DEBOER

The accompanying photograph was taken on the street surrounding the Civic Center in Richmond, California. The tree is a Newport Plum, purple leafed and small in character. This line of trees had trunks of about 7 feet of height and the trees were planted around the outside of the Civic Center, between the curb and the sidewalk. I could have photographed much older trees because the Newport plum is used as a street tree all around the residential areas of Berkeley, California.

This tree can be used in Denver. It is absolutely hardy. If you should decide to select this tree, keep in mind that it does not grow more than twenty feet high and has purple leaves. Do not buy a shipped in tree but select one from a local nursery and one which can be trimmed up.

## NEW MEMBERSHIPS

November and December, 1953

- Mr. Gus Hellbush, 1416 Newton, Sidney, Nebraska.  
 Mrs. Sam Rucker, 1300 W. Oxford, Englewood, Colo.  
 Miss Jo Mazurette, 329 Colorado Blvd., Denver 6.  
 Mrs. Charles A. Taylor, 145 So. 10th St., Brighton, Colo.  
 Mr. and Mrs. Keith R. Morrison, Carr, Colo.  
 Mrs. William J. Riece, 2280 Birch St., Denver.  
 Mrs. O. A. Saunders, 1615 East St., Golden, Colo.  
 Ruby W. Simmerman, 864 S. Williams, Denver.  
 Mr. Charles Taylor, 1300 So. Monaco Pkwy., Denver.  
 Mr. and Mrs. Bruce Ellsworth, 1106 Neptune Drive, Skyway Park, Colorado Springs, Colo.  
 Anna Lesser, R. No. 3, Box 130, Golden, Colo.  
 Mr. Carl W. Bechtold, 135 Balsam, Lakewood, Colo.  
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## Colorado Gladiolus Association

On December first, fourteen glad-happy people met at the home of Mrs. Paul Hastings and formed a Colorado Gladiolus Society. It was decided that the group would meet about six times a year, and that each meeting would be timely and pertinent.

This first meeting of the Association covered digging, cleaning and storage practices, and was led by Dr. Jack Durrance, Mrs. George King and Miss Margaret King. In future years this meeting will be held earlier in the fall.

The next meeting will be held at the home of Don Puffer, 2045 Eudora Street on February 25 and will be on varieties of gladiolus. Mr. Puffer will show many colored 3D slides of new gladiolus introductions, old favorites and beautiful gardens at this meeting.

In the early springtime, a meeting will be held and the accepted practices of planting will be the topic. At blooming time the members will meet in various gardens of members to see and admire what each member has grown.

The officers elected for 1954 are Don Puffer, president; Dr. A. A. Hermann, vice-president; Mrs. Paul Hastings, sec.-treas.; and Maynard Jacobson, editor.

## Garden Guide By Months *For The Midwest*

This new book written by Stanley McLane, comes nearer to filling the need for horticultural information adapted to our conditions than anything that has come out for a long time. While the area covered does center in Kansas City it includes western Kansas where conditions are

similar to ours. The material is arranged by months so that any information needed can be found quick. Stanley McLane has had a lifetime of experience in gardening and landscape work and writes in an easy-understand way. Published by the Frank Glenn Publishing Co., Kansas City 6, Mo. at \$3.75.

## Do You Enjoy the National Parks?

Forty million people visited one more of the 26 National Parks or National Monuments last year, only about a quarter million people total, belong to the four organizations which are interested in preserving these parks in their natural primitive attractiveness. These organizations are the National Parks Association, The Wilderness Society, The American Nature Ass'n., and The American Planning and Civic Ass'n. Only about two percent of those visiting these superb spots of Nature really appreciate them. This poses a problem, for the mobs which visit these places simply to be able to say that they were there are ruining very things that make them attractive. Many real Nature lovers have observed that these once grand places are now just "little Coney Island" littered with beer bottles and kleeen. That small 2% who appreciate the things must do a lot of hollering to be able to preserve a few of the places for their descendants.





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COLORADO'S GARDEN MAGAZINE





# WHAT ARE NATIONAL PARKS?

Director, National Park Service  
*Extracts from a Statement by the National Park Service*

By CONRAD L. WIRTH

**N**ATIONAL parks are spacious land areas essentially of primitive or wilderness character which contain scenery and natural wonders so outstanding in quality that their preservation intact for the benefit, enjoyment and inspiration of the people is a national concern. They are segments of original America—remnants of the native scene where forests continue to evolve normally, where animal life remains in harmonious relationship to its environment, and where nature and its processes may now and forever continue to be seen, studied, and enjoyed in their original design.

The purpose of the national parks as established by the Congress is twofold. The law requires that they be conserved and that they be administered to provide for public enjoyment "in such manner and by such means as will leave them **UNIMPAIRED** for the enjoyment of future generations." The basic policy, therefore, is to preserve nature as created and through appropriate development, research and interpretation of the natural phenomena of these areas, make them available for continuing public use without using them up. The objective of the National Park Service in administering the national parks is to maintain their integrity of purpose as defined by the Congress. National parks are established, individually only by act of Congress.

In the national parks, nature carries on for her own purposes and by her own designs. Natural processes and their results are there conserved for man to see, learn from, appreciate and enjoy. **NATIONAL PARKS ARE EXHIBITS OF NATURE ESSENTIALLY UNALTERED.** One of the products of the parks is recreation or public enjoyment.

That is why the American people through its Congress, long ago determined that there shall be both national parks and national forests. That is why the relatively small acres set aside by the people as national parks **CANNOT BE TAMPED WITH** if any unaltered exhibits of nature's handiwork are to be kept in trust by the Nation for the benefit of this and future generations.

The whole and true value of the National Park System of America will never be reduced to dollars and cents, nor can any large part of the value be so reduced any more than the value of religion or science or beauty can be expressed in those terms. The parks are of value for what they represent out of the long association of man and nature, man and his own history. To the extent that we save these places **NOT** commercialized, to that very extent will we succeed in saving also the **COMMERCIAL** value in terms of travel. This is the unique paradox of the national park idea.

---

*The above story by Mr. Wirth is most appropriate at this time when the future of the National Parks Service is threatened by the precedent of building the Echo Park Dam in the Dinosaur National Monument. Wilderness values are hard to balance against dollar values unless one understands what it is all about.*





*The Golden Throne in Capitol Reef National Monument. This majestic scenery is now in danger through opening the monument to uranium prospecting. Photo by Chas. J. Ott.*





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# The Green Thumb

Vol. 11

FEBRUARY, 1954

No. 2

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BERTHA DURFEE .....Assistant

MR. AND MRS. E. O. COOK, Custodians

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THE COLORADO FORESTRY AND HORTICULTURE ASSOCIATION

A non-profit, privately financed Association.

1355 Bannock Street

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Denver 4, Colorado

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Tabor 3410



## Midwestern Shade Tree Conference

The 9th annual meeting of the Mid-Western Chapter of the National Shade Tree Conference will be held February 17-18-19, 1954, at the LaSalle Hotel, Chicago, Illinois. Organized to encourage the planting of more shade trees, and to promote within the trade better observance of approved arboricultural practices, membership is composed of commercial arborists, city foresters, park superintendents, nurserymen, educators, research scientists and others interested in the propagation and care of trees and ornamental shrubs.

The convention is open to all who wish to attend. Registration of delegates will begin at 8:30 A.M., Wednesday, February 17, and the first paper on the educational program will be presented at 11:00 A.M. An attendance of more than 300 is anticipated.

The program is directed toward discussion of problems of concern to arborists in the midwest, but included also are topics of general interest to those who care for trees in any section of the country. Following presentation of each paper there will be a short discussion period. An additional opportunity for questions from the audience will be provided in the "Questions and Answers" session Friday morning. Various tools and supplies used in arboricultural work will be on display during the convention, with representatives of the participating firms and companies on hand to explain their uses. A special program has been arranged for the ladies.

Included on the educational program are the following topics:

"Dutch Elm Disease—Elm Phloem Necrosis—Up to Date," Panel Discussion—J. C. Carter, Richard J. Campana, L. L. English.

"Transmission of the Oak Wilt Disease," W. H. Bragonier.

"Insecticide Hazards—Facts and Fallacies," George C. Decker.

"Control of Scale Insects," E. F. Herrbach.

"The Arborist and the Client," Norman Armstrong.

"Tree Planting for Climate Control," L. R. Quinlan.

## Green Thumb Program Now on TV

Beginning Saturday, February 6, at 1:30 over KLZ-TV the Green Thumb Garden program will be seen and heard for the first time over television.

Lowell Watts and Carl Herzman, from the Farm department of KLZ, will direct the program which will feature George W. Kelly as the principal garden expert along with many other guest experts in various horticulture lines. We will try to bring you the latest and the best in garden information and it will be much easier to understand when you can see the things being done as well as hear of them.

Tune in each Saturday at 1:30 and get help in planning your garden work for the week-end. Truly "Rocky Mountain Horticulture is Different" and we must develop our own methods of caring for plants and lists of suitable plants for growing under all conditions in this area.

*Dormant Lime Sulphur Spray for Evergreens*

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Colorado Forestry and Horticulture Association

Organized in 1884

*"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to make available correct information regarding forestry, horticultural practices and plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."*

OFFICERS

President.....Fred R. Johnson  
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Secretary-Treasurer .....Mildred Cook  
Editor.....George W. Kelly

Mountain Trips in February

Unless otherwise noted all trips will leave Horticulture House at 8:30 A.M. Bring lunch, snowshoes or skis, camera and warm clothing. Register at TA 3410 or PE 5565 by Friday.

Feb. 7, Sun. Butler Gulch. Drive to Berthoud Falls by way of Idaho Springs road and up Jones Pass road. Park cars at Howelsons. Driving distance 120 miles. Snowshoe 3 miles.

Feb. 14, Sun. West Portal by train if desired. Leave Union Station 7:45 A.M., return 6:30 P.M. See ad in January Green Thumb. Mary Jane Creek trail or Corona Pass road possible for cross country. Snowshoes or skis.

Feb. 21, Sun. Urad Mine Gulch. Driving distance 125 miles, walking 4½ miles.

Feb. 28, Sun. Devils Head Road. Park cars at Indian Creek Ranger Station, proceed up road towards Devils Head. Driving distance 65 miles. Walking or cross country optional.

Mar. 7, Sun. Snowshoe and ski Old Squaw Pass road, up the old road that takes off at Hot Springs Hotel and turn to the left, about 3 miles from there. Possible to go by bus from 17th and Glenarm. Walking distance 4-10 miles optional, driving distance 90 miles.

Something New in Horticulture

The American Horticultural Council, Inc., has recently published the first edition of "The Directory of American Horticulture for 1954." This a book of 96 pages listing horticultural organizations both commercial and amateur, arboretums, special plant societies, horticultural publications and horticultural items of interest in each state.

This directory is a publication of, by and for horticulture. It has been planned compiled and carried out in the interest of and to assist all those in all branches of the field—amateur, commercial, professional and scientific.

Copies may be obtained by writing the editor, A. J. Irving at 1 East 57th St., New York 22, N. Y. The price is \$1.00. Write for your copy now.

Don't Miss It

The Annual Dinner this year will be a memorable affair. As it is our tenth anniversary the committee has been working for months on arranging an entertaining and impressive program. Come and bring your friends (members or not, maybe they will want to be members). The time is 6:30, February 15. The place is the Chamber of Commerce Bldg., at 13th and Welton. The price is \$2.50 including T.&T.



## CHERRY'S GARDEN DIARY

*February, with a little left over winter and  
a little promise of spring.*

Feb. 6. It is cold and blowing snow this morning. I couldn't get Red Dagwood up. He has had a hard week (so he says) and I guess needs his sleep. I'm going to clean up the stacks of magazines and things that have accumulated all over the house. . . . I didn't realize how late in the year it was getting and these seed and nursery catalogs remind me that I should get my orders in now for anything that we will need this year. There are sure some nice pictures here. I wish that we could grow all those nice flowers here. . . . Dad just stopped by to warm his nose and saw all the catalogs stacked up. I could not help but enthuse a little to him about all the nice things that I was going to grow in our garden this summer. He took a little wind out of my sails I guess by calling my attention to the fact that many of those nicely pictured things do not grow here at all or only under very favorable conditions. I asked him why they did not say so in the catalogs and he said that they probably did not know that we have gardens in this "wild and woolly west" and that those descriptions were for the older areas of the east. He advised me to look up some reliable local seed store and nursery and talk with them about what would grow here easily in a new garden where the soil was not too good and the wind and sun had full sweep. It sounds like good advice.

Feb. 7. Still cold and snowy this morning. I can't entirely give up all the nice flowers that I had picked out yesterday, especially since mother was over last evening and thought that those rhododendrons and magnolias that I had picked out would be "just wonderful" under my south window. Mother has such grand ideas, but I suppose that I should listen to Dad, too, when he brings me back to earth.

Feb. 13. It's plenty cold this morning but the sun is out bright and the snow almost gone. Looks like it would be a fine day to get out doors again. Dad was by again on his way to work (he still has to work Saturday mornings). He walked through the garden and told me that this would be an ideal time to do the necessary pruning on the grapes. He tried to explain how—that the stored food from last year was more in the roots now when the ground was frozen and we would lose less by pruning now. I didn't quite understand but I'll go out and try my hand at thinning out and cutting back the grapes before my Red Dagwood gets up. . . . Red finally got up and saw me working in the garden. He came out and wanted to help so I got him to take the wheelbarrow and gather up some of the trash that the winter winds had blown into the garden. While doing this he noticed that the wheelbarrow wheel needed adjustment, and I suggested that it could stand a coat of paint. He is now working like mad (as he does everything) painting, pounding, polishing and puttering with all the garden tools. Not a bad idea.

Feb. 20. It is still nice weather and I found that there was little frost in the soil except on the north side of the garage. Dad Dendron felt the farmer's urge of spring caused by this mild weather and came by, to get his feet muddy, I guess. He was kicking around on the south of the house and found that the ground was very dry down several inches. He advised me to



get out the hose and water it. I thought that there was no need to water in winter but he said that plants need water when the ground around them is dry at any time of year. I hate to crawl way under the house and turn on the water, I always get my hair full of spiderwebs. Maybe I could induce my big boy Red to do that. . . . Dad Dendron was still puttering around and asked if it would be OK with me if he spaded some of that pile of peat and sheep that I got last fall into the bed where I want to plant my vegetables next spring. He just has to be digging in the soil when it warms up in spring. I told him to go ahead and he is sweating like a horse now, throwing dirt like a badger and happy.

Feb. 21. It was so nice this morning, but now is clouding up and looks like another storm coming over Long's Peak. Mother Dendron came over, and as it was no longer pleasant outdoors we came inside. She immediately went to the window and began fussing with my plants. She would pinch off the dead leaves from the geraniums, and scratch up the packed surface of the soil around the plants. She recommended putting a little layer of peat, vermiculite or pumice stone on the surface of the soil around my plants to help keep it from baking. She also recommended making up a batch of "Honey water" to water the plants every couple of weeks. (This "honey water" she explained was made by soaking a sack of cow manure in a bucket of water for a few days. Makes the house smell a little like a dairy barn for a few minutes, but she says that the plants really appreciate it.) She found a few mealy bugs and scale starting on a few of the plants so gave them all a bath in the sink. Made them look better for washing off the dust anyhow. She asked to see my stored bulbs; glads, begonias and dahlias. She thought that they were all in too warm a place as the dahlias were beginning to sprout a little and at the same time were shrivelling up some. We put a moist sack over them and moved them to the closet under the stairs where it stays about 40 to 45 all the time. The poinsettia and cyclamen that I got for Christmas were not looking too good. She recommended that I throw away the poinsettia as it would be too much trouble to keep for next year. (I don't believe that she thinks much of my ability with plants.) She thought that the cyclamen might gradually be dried up and let go dormant for a few months and then be brought back into growth later. I may develop a green thumb myself if I continue to have contact with those people who seem to just know by instinct what is good and bad for plants.

Feb. 27. Another nice day, but last week we had a sudden snowstorm with wind and now there are broken limbs in the Chinese elm, some of the spireas are mashed down where it does not look as though they would come back up again, and the nice little cedar tree has the top broken out of it. I'll do what I can to clean up the broken limbs but it looks to me as though it was a job for an expert to try to fix up all those bad breaks in the trees. I'll call Dad and ask him who it was that did such a good job for him last year.

Feb. 28. What a wonderful day today is. The air is warm, the sun shines bright and I do believe that the lilac buds are swelling. I wonder if it is time to uncover the roses. I saw a man spreading some vile smelling stuff on the neighbor's lawn down the block. I wonder if it is time to start giving my lawn its spring fertilizing. I'd better call Dad Dendron and see what he thinks. . . . Dad Dendron said that with my poor soil he thought that a good dressing of manure, peat and sheep, compost or such would give it the



benefit of a mulch as well as allowing some plant food to gradually leach in. He warned against buying any old stuff that was peddled by the "landscape architect-ashhaulers" going by every day now, as this material might vary all the way from good manure to largely gravel or sawdust, and most likely was full of weeds. He thinks that the important place for manure is worked down into the soil BEFORE planting and that it might be best to use a commercial fertilizer when the weather warmed up and the plants were ready to grow. He also said that the farmers who had to work efficiently had fertilizer mixtures made up for their particular needs and did not pay a lot for materials that were not needed in our alkaline soils. He said that in many instances 5 pounds of ammonium sulphate and five pounds of iron sulphate to the 1000 square feet of lawn would not only give maximum growth but would give dark green growth and cost much less than a fertilizer full of potash, lime, or large amounts of phosphorus. I'll try it out this year. . . . We are going to forget the garden for a few hours and take a ride into the mountains. . . . What a wonderful day we had, even found some Oregon grape in bloom on a south slope. Now there is apparently another storm coming up over the mountains and as the sun goes down the air is chilly. I guess that it is just as well that we did not stay home and uncover the roses. We may have more winter yet, for I have heard that "Rocky Mountain Horticulture is different."



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### **MATURE, FULL BLOOM CAMELLIA PLANTS**

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## Get Your Money's Worth When Buying Nursery Stock

Excerpts from SAFEGUARD, published by Better Business Bureau.

As is true of virtually every segment of American business, the nursery industry has made tremendous progress in recent years to the benefit of the masses of the American people. Householders in the modest homes have been enabled to translate backyard eyesores into plots of beauty. More people, with more leisure, combined with the industry's greatly improved methods of marketing and distribution, are making it possible for increasing millions of people to find true enjoyment in the planting and care of nursery stock both for ornamental and utility purposes.

### Fakers Exploit Ignorance

This great growth and development of the nursery industry, brought about by an increased public interest in and demand for nursery stock, unfortunately has been accompanied by the development of fly-by-night operators, firms of questionable reputation and integrity, and transient fakers who use gyp advertising and sales methods to foist inferior and, in many cases, worthless plants and horticultural services off on unsuspecting and uninformed buyers.

Thousands of people lose millions of dollars yearly through the careless purchase of nursery stock and services from such unscrupulous sellers.

It was Ruskin who said: "There is hardly anything in the world that some men can not make a little worse and sell a little cheaper, and the people who consider price only, are such men's lawful prey." And this applies also to the unscrupulous "nurseryman," some of whose activities have been cited here.

## Wise Buying Increases Buying Power

Most of us have only a limited number of dollars to spend on the things we want over and above the necessities of life. The net effect of careless buying of nursery stock and services from unscrupulous operators is to deny us altogether what we wanted or to force us to pay several times for what we buy. Wise buying increases our buying power and the productivity of our income.

### Will It Grow in Colorado?

There are problems of water, soil and climate that make horticulture in this area distinctly different and preclude the use of many varieties of plants that may thrive elsewhere. Thus it is important that this problem be considered by all residents of the area, and that honest advice be obtained from reliable sources.

There are lists available to you that will tell you what plants and trees will or will not grow in this section—and also inform you as to what special precautions to take to assure growth.

Your safeguard is to buy from those whom you know are reliable and trustworthy—in other words—"if you don't know the merchandise—be sure you know the merchant." Remember, too, that the "biggest" bargain can turn out to be the "worst" bargain.

He is happiest who has the power,  
To gather wisdom from a flower,  
And wake his heart in every hour  
To pleasant gratitude.

Wordsworth.

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#### AFRICAN VIOLETS TO ZINNIAS

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## HOW TO PLANT

By HERBERT GUNDELL

**I**N many parts of the United States the planting of trees and shrubs is a very simple procedure. All that is necessary is that you dig a hole, set in the tree or shrub, and let nature take its course. In this area, however, we must observe a few simple rules to be successful.

The first and most important operation in the planting program is the preparation of the soil. If possible, manure or other organic material should be mixed with the soil at least two or three months before the new plants are planted. If that is not possible, it is good practice to first remove the top three or four inches of soil where the tree is to be planted and keep this in a separate pile, then make a large hole, removing sub-soil and placing the sub-soil material also in a separate pile. Any hole dug should be generously large to allow for natural spread of all the roots.

While the holes are dug in the garden and the soil is prepared for planting, the roots of the plant material that has been delivered to your home should be protected. If they are to be planted soon, this can be

accomplished by wrapping the roots with burlap and keeping the burlap moist, placing the plant material in the garage or any other shady place; or, if they cannot be planted at once, by digging a shallow trench and inserting the roots of plants in this trench just covering them with soil and keeping the soil fairly moist.

After the hole has been dug to sufficient depth and width, place each plant in the hole separately allowing sufficient room for a little root expansion. Top-soil that was put in a separate pile should be placed deepest in the hole. It contains the most plant food and humus and will give the roots something to feed on as they begin to penetrate the surrounding soil area. The sub-soil which is added next should be mixed with a little leaf mold or peat moss and should have an addition of one-half cup of superphosphate per cubic foot of soil. (A bushel basket of soil usually is about one and a quarter cubic feet.)

In planting a shrub or tree, attention must be paid to the ultimate size and spread of that plant. It would be faulty practice to place large trees near the boundary line or a fence. It is equally faulty to place shrubs or evergreens too close to the house foundation so that they would actually crowd the foundation or have to be cut back severely in later years.

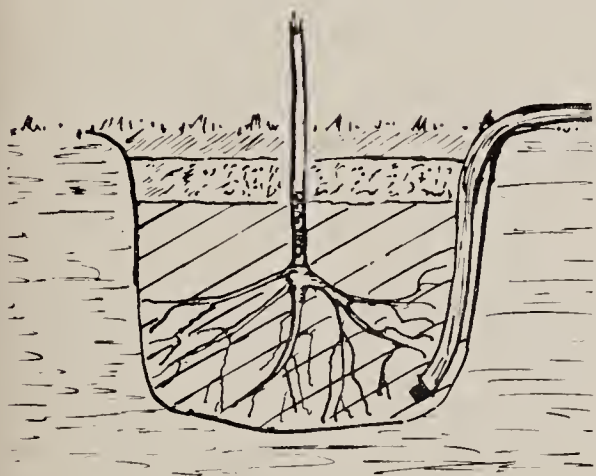
It is also essential to tamp the soil down as it is replaced in the hole. Attention must be paid in planting shade trees or fruit trees that the lower scaffold limb is placed in the south-westerly direction. This will assure a little additional shade and protection during winter months when the tree is without foliage. After almost all the soil has been replaced





in the hole, a generous amount of water should be applied in order to make the soil settle and eliminate all possible air pockets in the ground. This watering should be repeated two or three times, a half-hour or an hour apart. Then more soil is placed over the hole using up all the soil that has been removed in order to plant the tree or shrub.

Another successful method of watering-in, where water from a hose is available is to sift the soil in carefully around the roots and then work the hose, with the nozzle off, down to the bottom of the hole; turn on the water and water from the bottom up, letting the soil settle around the roots as it is wet. (Do not try to use a combination of these methods, as the soil should be loose in the second method.)

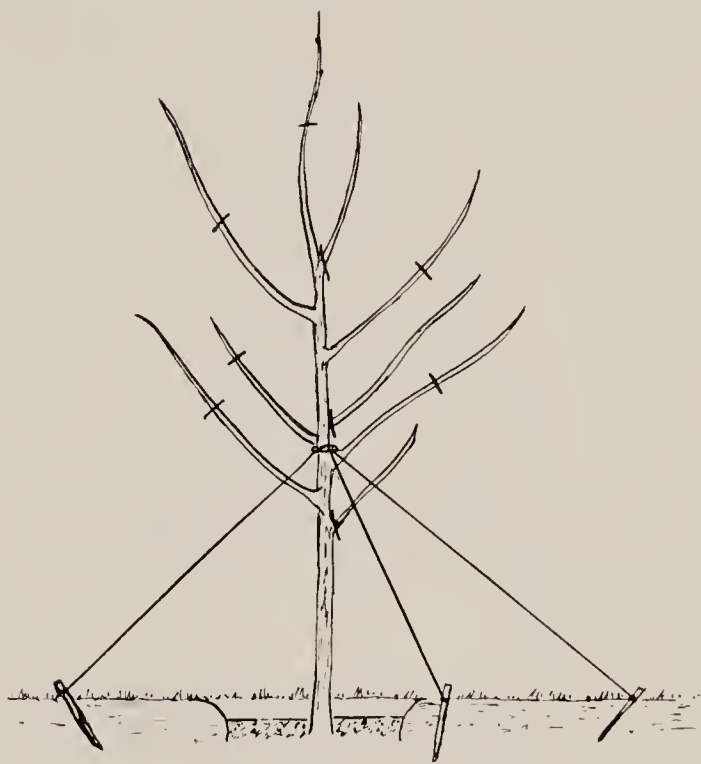


Trees and shrubs that have not been pruned by the nurseryman before they were delivered should be pruned and trained somewhat, to make up for the loss of roots in transplanting. Shrubs are usually cut back one-third to one-half. On trees, many of the smaller branches are removed, narrow crotches are eliminated and only wide-angle crotch branches are kept for the development of a good scaffold for the tree.

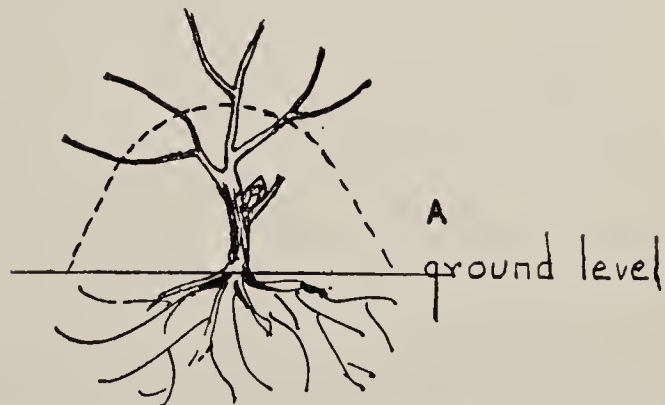
Newly planted deciduous material should be watered thoroughly once

a week in order to assure adequate moisture before leafing out. Much of the success of a newly planted shrub or tree depends on the after care given during the first growing season.

Smooth bark trees that have a tendency to winter damage from excessive exposure to sunlight should be wrapped in order to protect them further. It is also advisable to stake larger trees to protect them from possible up-rooting by heavy winds.



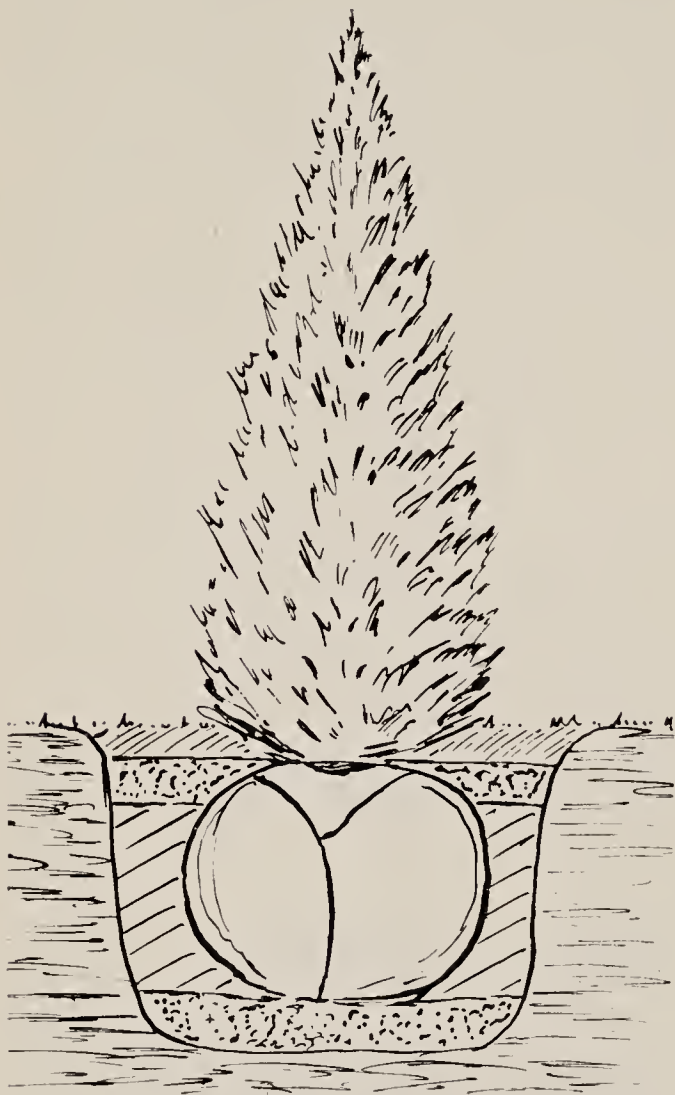
Roses should be hilled four to six inches after planting with good loose soil to protect them from drying out while the new eyes are sprouting on the canes.



Hilling up Budded Stock  
for Winter Protection



Evergreens that are delivered to your home with the roots balled and burlaped should be planted without removing the burlap. It is however advisable after the plant is set to cut the top string near the crown of the plant which may girdle the plant before it rots.



## CHEMICAL LAWN MOWERS

"Be careful how you use chemical lawn mowers," warned Dr. R. Milton Carleton, Research Director for Vaughan's Seed Company, recently. Speaking before the Men's Garden Club of America, he pointed out that the new chemical lawn edgers should not be used over the entire turf.

These chemical lawn mowers are based on maleic hydrazide, a hormone-like material that throws plant growth into "low-gear." When sprayed on the edge of a lawn near shrubbery

or along walks, these "stop grass" chemicals do slow up growth enough to eliminate hand trimming for several weeks. If not more than two applications a year are made, the grass is merely slowed up. A third application may kill the grass.

Dr. Carleton, who has been experimenting with maleic hydrazide for several years, has tried out the idea of mowing the entire lawn with this chemical, an idea which has been widely publicized recently. He warns against this on home lawns for several reasons. First, not all plants in a turf are affected at the same rate. This means that no chemically treated lawn can be expected to be uniform in height. The effect is too ragged to satisfy the discriminating homeowner. A single application, just before leaving on a vacation may hold back grass for several weeks, but mowing will be needed later to even the turf, he explained. Even this is accompanied by some risk of killing a turf and should not be done unless regular mowing is impractical.

Each spraying of the turf necessarily results in a check to root growth, he explained, and lawn health depends on vigorous root growth. Along the edge, the individual plants can suffer some damage without injury to the appearance of the finished turf.

Several state highway departments are using maleic hydrazide successfully to cut maintenance costs on highway shoulders. Here the ragged effect of the spray and the killing of an occasional plant is not too serious when contrasted with the difference between hand mowing and chemical growth control.

Where properly applied, the "stop grass" lawn edgers have substantially reduced the amount of work needed to keep a lawn neat.



## Trees and Shrubs Cut Street Noises Fifty Per Cent

Landscaping with trees and shrubs along streets and highways absorbs considerable traffic and other noises, in addition to relieving the home owner from a constant view of whizzing automobiles, according to the American Association of Nurserymen.

"The automobile is so vastly important from the viewpoint of our national economy as well as family pleasure that traffic cannot be reduced," says the Association, "so the only logical solution to the problem is the widespread use of plant 'buffers' to abate the noise. Countless abutting home properties can be made far more desirable for living and their value greatly increased by hedges and trees."

The Association advises, if space permits, the planting of a double row of coniferous evergreen trees on the street or highway side of the property should the noise be continuous all year. If the noise should be troublesome only in the summer months, a planting of deciduous trees, which shed their leaves may be sufficient. In cases where the noise is only moderate or where ground space is at a premium, a single row of columnar type evergreens or a high hedge will serve the purpose. The noise is reduced in direct proportion to the depth of the planting and the denseness of the foliage.

For this reason, any dense growing evergreen is ideal, such as firs, spruces, and junipers. With a sprinkling of flowering trees among them the strip can be beautiful. Hedge materials for the purpose are plentiful and varied. It is always preferable to consult your local nurseryman with respect to your particular soil and climatic conditions. One condition

should be met conclusively, however; you want plant material that will be hardy in your area under all conditions of cold, wet, heat, or drouth.

The plant "buffer" also will tend to guard your home against dust and fumes from the street or highway. In a test in New York City on the leeward side of tree-covered Central Park, it was found that the dust count was reduced by 75 per cent.

According to Wilbur H. Simonson, of the Bureau of Public Roads, U. S. Department of Commerce, evergreen trees are credited with greater ability for absorbing part of raucous sounds and for scattering the remainder, thereby lessening the impact of the sound on the property to the rear. Furthermore, he said, they virtually eliminate the echo factor.

Overall sound reductions by plant "buffers" are estimated to be from 45 to 60 per cent, depending on the type of roadway, according to Mr. Simonson.

---

### SOLITUDE

Happy the man whose wish and care  
A few paternal acres bound,  
Content to breathe his native air  
In his own ground.

Whose herds with milk, whose fields  
with bread,  
Whose flocks supply him with attire;  
Whose trees in summer yield him  
shade,  
In winter fire.

Blest, who can unconcern'dly find  
Hours, days, and years, slide soft  
away,  
In health of body, peace of mind,  
Quiet by day.

Thus let me live, unseen, unknown;  
Thus unlamented let me die,  
Steal from the world and not a stone  
Tell where I lie.

Alexander Pope.



## WHAT FERTILIZER IS BEST

*We asked Wm. E. Gunesch of Park Floral Co. this question and here are his answers as told to George W. Kelly. "Bill" is well known for his recommendations regarding fertilizers and their application in this area. He has studied and experimented with their need and use for many years.*

**T**HE conflicting claims of garden enthusiasts or commercial firms as to the relative use and value of various fertilizers is very confusing to the average home gardener. Actually there is no one "best" fertilizer, but all of them have a use when applied in the right place at the right time and in the right way.

The first big point of difference is between the "organic" faddists and the manufacturers of the ordinary "commercial" fertilizers.

If we would get a new conception of the purpose of adding fertilizer to the soil it might clear up some of our confusion. Actually we should think of the addition of fertilizer as improving the soil so that it might feed the plant, rather than feeding the plant directly. One of the reasons that manure is still one of our best fertilizers is that it does a three point job; adding necessary chemicals, adding important humus and encouraging the necessary action of bacteria and other micro-organisms which prepare the materials in the soil for plant use. Compost and leaf mold may do these same things in a lesser degree.

Peatmoss, chopped corn stover, ground up corn cobs, straw, green manure crops and such materials encourage plant growth mainly by improving the physical qualities of the soil so that it holds water better, remains looser and encourages a better root growth.

The popular commercial fertilizers, on the other hand, do little to improve the physical qualities of a soil but simply add chemicals which may be naturally deficient or have been used up from the soil by crops. They

are generally quick acting and last only a short time. While the organic fertilizers may be applied at almost any time during the growing season when the soil is warm (June to August) and to any soil, the chemical fertilizers must usually be applied in small quantities, frequently, and their application must be carefully worked out to supply efficiently those elements that are most needed.

Buying a ready mixed fertilizer made up for conditions in the East is not usually an economical way to spend the fertilizer dollar. In our area of limited rainfall and generally alkaline soils, our chief plant food lack is phosphorus and nitrogen.

Most of our soils lack sufficient phosphorus and so a good application is necessary in most cases. Phosphorus is not leached into the soil readily and so must be incorporated (mixed into the soil down where the roots can readily reach it. The reason that many gardeners swear by bone meal is that it usually shows some immediate results from the nitrogen or other things it may have in it, however, the phosphorus in the bone meal is very slowly released, so can do no harm to plants; yet over a period of many years may do considerable good. Actually the most economical form of phosphorus is in some such form as superphosphate.

Nitrogen as found in most commercial fertilizers is quick acting, leaches down into the soil quickly and lasts but a short time, so that it indicates that its most practical time of application is when the plants are ready to grow. There is usually some nitrogen in manures and compost



but the most efficient source of this important chemical is in some such product as ammonium sulphate or ammonium nitrate. These common sources of readily available nitrogen must be used with caution as an over application is quite likely to injure plant roots, especially if the soil is dry when application is made. In general the value received in a fertilizer is found to be in direct proportion to the percentage of nitrogen available in it.

The importance of the addition of nitrogen as a plant food may often be overemphasized because its application usually gives immediate and apparent results; while phosphorus may do an equal amount of good, but it is more difficult to apply to growing plants and the results are not as immediate and apparent, consisting largely in added health, better root growth or added food value in the plant, rather than conspicuous top growth.

The third element listed in all complete commercial fertilizers is potash. This is another salt and in a majority of places in our area is not deficient. Some is needed in a fertilizer to balance the effects of the added nitrogen and phosphorus.

Some think that probably the most nearly ideal fertilizer for our area would contain about 6% nitrogen, 8-10% phosphorus, 2-4% potash and have an organic base as the filler of some such material as manure, compost, peat, low grade bone meal or soybean, castor bean and cotton seed pumice.

The addition of a little sulphur or iron sulphate, while not generally classed as fertilizers, may help to counteract excess alkaline conditions and prevent yellowing of leaves, or chlorosis. One successful combination used on lawns is about 5 pounds ammonium sulphate and three pounds of

iron sulphate to 1,000 square feet. This not only encourages rapid growth but gives a good dark color.

One caution must be observed in the use of high cellulose organic materials such as sawdust, straw and peat moss which break down slowly. If worked into the soil they may rob the surrounding area of nitrogen and starve the plants for many months, unless about 2% of nitrogen is added at the same time to supply this loss. Other organic materials may have this same effect but for a lesser time. If used simply as mulches on the surface these materials are very valuable and will cause this nitrogen shortage to a much less degree.

There is much being said in recent years about the value of supplying the various trace elements. This is generally less important in our Rocky Mountain-Plains area than in the East, as our soils are not as likely to be deficient in these rare minerals. It may be worth while to do a little experimenting to see what results are given before spending large amounts for trace minerals.

There is much being said, in the last few years, about the value of using the new chemical soil conditioners. There is no question but what they may help to loosen up a heavy soil when used properly, but many of the claims originally made for them were not founded on fact, and usually the proper application and mixture with the soil of suitable organic matter will do all that these chemicals will do, at no greater cost and with many additional benefits.

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December, 1953

Mrs. William Evans, 1310 Bannock St.,  
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## TO THE NEW HOMEOWNERS

By HERBERT GUNDELL

**C**ONGRATULATIONS and the best of luck to you! Is that what the contractor or the sales representative said to you when he handed you the key to your new home? And you really are a very lucky home owner because you have an opportunity to create some beauty and colorful decoration around your new home. There are, however, two important assets that you must possess; namely, *vision* and *patience*. "Oh," do you say, "What do I need vision for?" You need vision because you have to be able to see young seedling plants in the nursery when they are only two or three feet tall and imagine them somewhere in your home grounds when they have grown to much greater height, to mature size and are taking their rightful place in the home ground development picture. And you say, "What do I need patience for?" Well, that is very simple. Patience is that ability to wait and hope for a tree to grow from a sapling to fulfill its ultimate requirement for usefulness and beauty in your home yard.

Yes, Mr. and Mrs. Home Owner, you have a genuine opportunity to create something that should represent your own taste, your own choosing and your own selection. It takes vision to furnish the inside of a home and it takes money. We realize that and of course you take these things step by step, purchasing what you can of the appliances and furniture as you go along. And after you make each purchase you will know exactly where to place these new pieces of furniture, to arrange them attractively in your home so that they will serve both as decoration and a useful purpose for the family. Do you have the patience? Why, of course, you have

the patience. Everyone knows that you cannot buy all the furnishings you need at once. You buy them as you have the time and the money to make such improvements. Now how does decorating the inside of a home possibly relate to the beautification of the landscaping of your home on the outside? Truly both serve the same purpose. They serve you in usefulness and in beauty and in enjoyment and they are both very essential to make a house a home.

We realize that landscaping a new home is a very important undertaking. It is necessary that you do things step by step with a good sound plan. Let me emphasize that word "*plan*." It is one of the most important aspects of anything you do around your home. If you do one thing at a time, but you do it all within the framework of a general plan, you will sooner or later complete an effort of which you can honestly be proud.

"Well," you say, "how do I know what to plant?" There, you have touched on another important subject. It is, of course, assumed that you have never undertaken the planting of a landscape before. You cannot learn from poor experience because it is rather expensive to remove grown trees and replace them with new ones. Here you must have confidence in some of your fellowmen and authorities in your community. You can, if you are willing and if you are ambitious, learn some of the fundamentals of landscape design yourself before you undertake anything else. Both local universities and Horticulture House, as well as the Denver County Agent are organizing lecture courses that deal with the principles of landscaping in which you can learn enough in a short pe-



riod of time to have the confidence in yourself that is so necessary to succeed. Perhaps you will ask now, "Where are some of these courses given?" Will I have the time to travel the distance that is necessary to attend these meetings?" Well, I am sure this question can be answered affirmatively. George Kelly, Pat Galavan, George Stadler and the author of this little story are putting their heads together to make the necessary plans to hold landscape meetings in the various outlying districts in Denver. As the plans stand now, there will be four or five series of these meetings in geographical locations around the periphery of Denver where most of the new homes are found. These courses will be held one day each week for about two hours each night for four weeks and will cover most of the general aspects of landscaping with a discussion on lawns, on soil improvement, on adapted plants, shrubs and trees, and many other points that will aid you in helping yourself to make proper selections for your own home landscaping project.

Another important aspect that should be considered by everyone in this general area is the proper handling of local soils. Local soils are lacking badly in organic matter, and in nitrogen and phosphate. The organic matter is material that can be supplied through generous additions of manure, peat moss, leaf mold or compost when your land is still in the rough like it is just shortly after you take possession of your property. I must point out to you that this is your one and only opportunity in most cases to add organic matter to your soil before you establish your permanent ground cover such as your lawn. You have this one opportunity to add these necessary improvements to your soil. If you do fail to make these improvements before you estab-

lish your ground cover, you will experience considerable difficulty from time to time to really have a successful landscape. Good, mellow soil is and always will be the most important constituent in making for adequate growing conditions in this area.

I would like to part with one additional thought at this time. This concerns particularly the planning of your landscape and figuring approximately the amount of money that it will take to do a real first class job. Normally it is quite safe to figure from 3 to 5% of the total cost of your home as adequate for landscaping the outside of your home. If you have one of the very lovely homes in the Denver area that have cost you in excess of twenty thousand dollars, I would urge strongly that you retain the services of a qualified landscape architect to do some of the planning with you. His experience and his acquaintance with local conditions will give you considerable assurance that you will be selecting the proper type of landscape for your home. His services are inexpensive considering the long range value of your home landscape program. You should always realize that nothing will do more to maintain the value of a home over a longer period of time than a good qualified landscape program that will keep your home ornamented in a most useful, beautiful and enjoyable manner.

Gardening is the leading hobby in the United States. There are approximately 30,000,000 home gardeners, according to authoritative estimates, says the American Association of Nurserymen.

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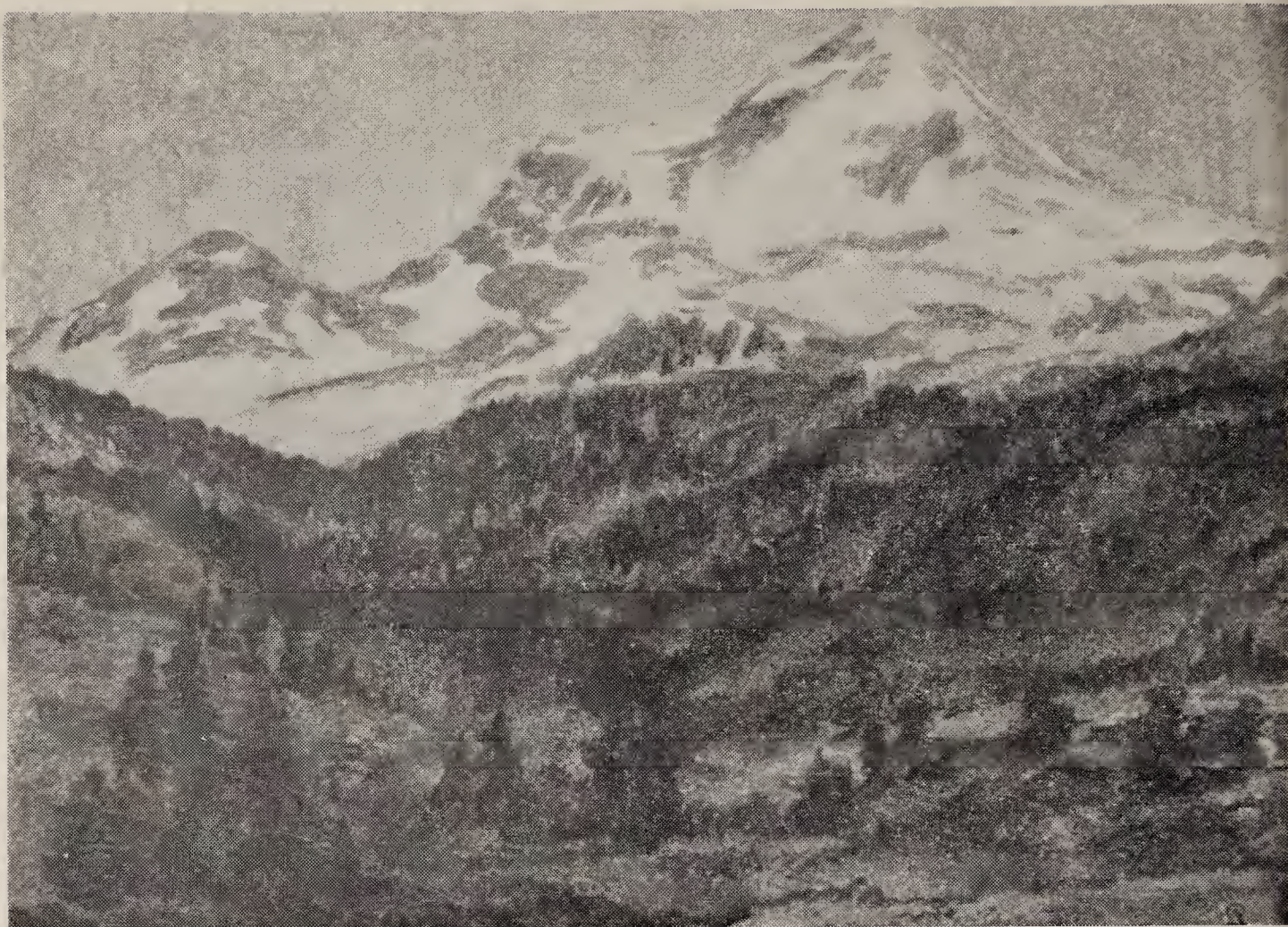
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*Mount Harvard, our mountain of granite.*

## CERAMIST - GARDENER

By MILDRED STEELE

**J**UST speaking casually, you would say that Ceramics and Gardening could not have even a remote acquaintance. Actually, you couldn't be farther from the truth! The two subjects are as close as brother and sister, and as we often say, both made of the same clay, and clay is the basic material for both Ceramics and Gardening.

The Gardener learns that the soil is a break-down of the Rocks of Creation, made fine by water and weather. It is washed down the mountain and caught in crevices to await the first vegetation to further break it down by its natural growth cycle, leaving in return, the vegetative forms of the same rock minerals, which we shall call "humus."

The Ceramist learns that an "Acid Dew" once enveloped the Earth, and

started the breaking down of Creation's granite mountains. White, powdery, unplastic clay was left, which was subsequently washed down into the valleys, gathering on its way, many more minerals which gave color, texture, and plasticity, enabling it to be molded into whatever shape is desired by God or Man. We are told that God moulded Man from the clay, and that first Man was also a Gardener.

In old Japan, in the days of the wood burning kilns, it was common practice to use the wood ash as the substance of a ceramic glaze, adding to it such ingredients as were necessary to complete the chemical needs, and the colorants. The Japanese potter took note of the fact that each kind of wood ash had a definite bearing on the glaze texture, and there-



more used each for its specific characteristic, favorites being from Cannelia wood and Bracken. Even the "clean-up" wood and brush from the garden was all saved for its precious mineral horde, to be perpetuated on their Ceramic wares, an added bonus for the Gardener who was also the Ceramist.

From the earliest Spring blossoms to the last chrysanthemum in the Fall, there must be vases and bowls to give the long procession of flowers each a perfect setting for our homes, that we may love and caress them individually. What meal, however frugal and weary the participants, cannot become a banquet when flowers grace the table and a glow of candle light is over all? The dishes are of Ceramic origin, and what Ceramist

does not reflect his garden onto the designs of his wares?

For Winter, the garden must be indoors; another problem for the Ceramist. Potted plants need an accompanying jardiniere to conserve moisture and make harmony on the window sills.

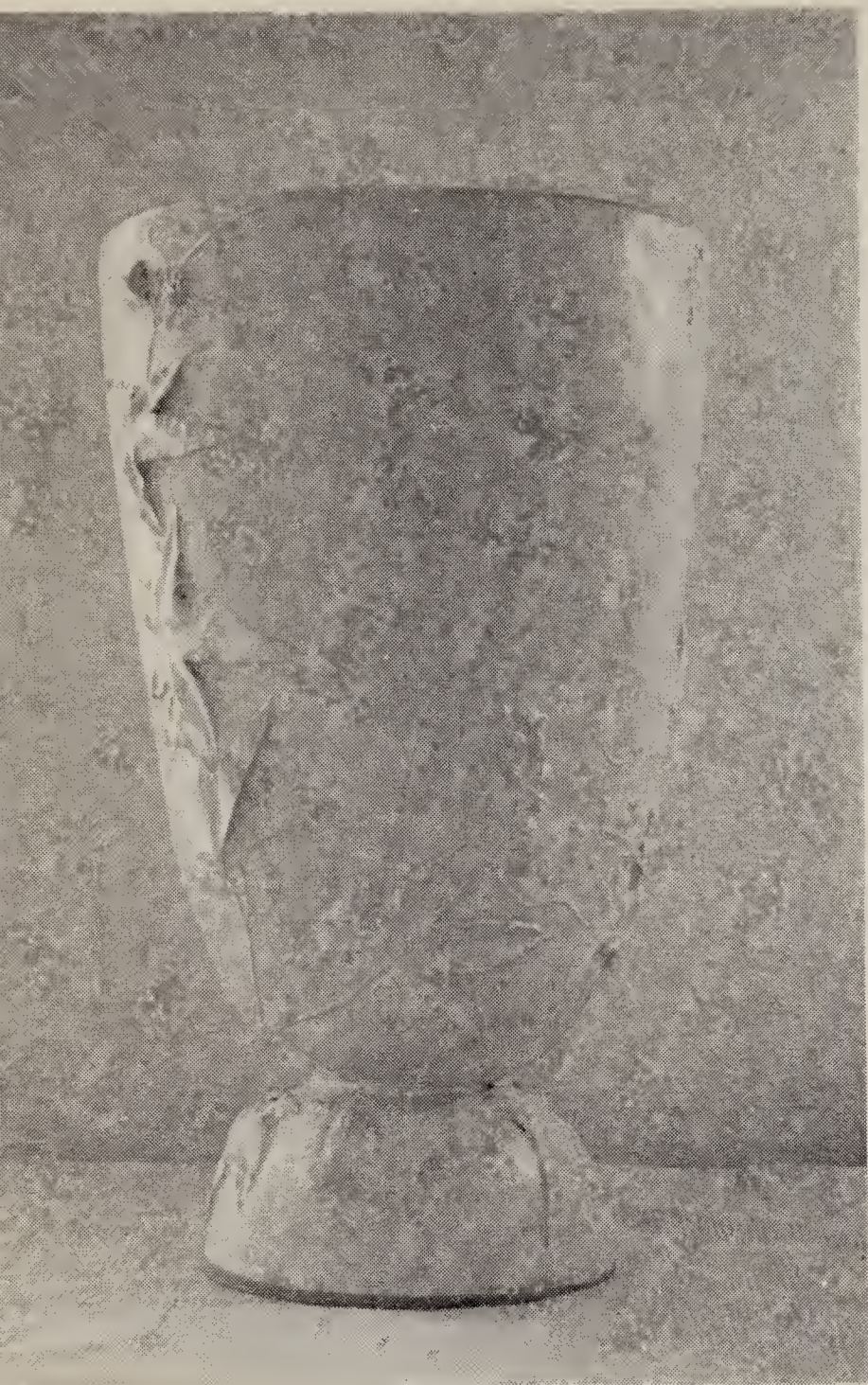
With the discovery of Krillium, the friendship between Ceramics and Gardening shows new interest. Krillium, added to clay soil will disperse the particles to make a loose, friable texture needed to better sustain plant life. Potters have known for countless generations that certain materials will cause clay to become unplastic, an asset for casting forms in moulds. In both Gardening and Ceramics, the principle is the same.

Ceramists have been known to

*Species tulips and Primroses in a ceramic vase.*







*Wild Cucumber design on ceramic vase.  
Photo by Virginia Scott.*

spend a lifetime to perfect a color in a glaze. Infinite patience it takes to blend materials, and great skill in firing. The Gardener may spend a

lifetime to await the perfect flower product of careful crossing by hand pollination, and countless generation of seedlings. How seldom does one realize the loving labor involved to reach perfection in blossom or pot.

Both plants and ceramic wares are products of fire; the plant, by the fire of the Sun, carefully administered and the pot, also by the Sun's fire indirectly stored in wood or coal. More modernly, we use gas or electricity for firing pottery, which are none the less, latent Sun heat.

Flowers have always been our standard and inspiration for colors. We name our colors for the flower—cornflower blue, apple blossom pink, orchid, lilac, violet, geranium red, buttercup yellow. How better could we express colors?

The colors of the Pot may last thousand years, but where goeth the colors of the flowers when they fade? Must their loveliness be lost after so short an existence? Indeed, no. Here is the secret truth, locked away in our dwindling word of fantasy. It is known to children of many lands, a fresh delight to every generation. When the blossoms fade and wither and their day is done, there is an ethereal resting place for them in the Rainbow. And what of the Gold at the Rainbow's end? It is in a Pot fashioned by the Great Potter. The Gold pieces are Memories, memories of the countless good things we have had along our way.

## DRAINAGE

THE importance of proper drainage has probably been overlooked by many gardeners. Improper drainage is often the cause of failure in a garden when all other considerations, such as watering, fertilizing and cultivation are done properly. One of

the chief factors that make gardening in Boulder so much better than in any other community of the state is that there is naturally good drainage in these foothills.

In this area of limited rainfall the lack of sufficient drainage tends



keep the excess alkalies from washing from the soil and allows them to build up to a point where they poison plant roots.

If our gardening operations are carried out on naturally sloping land or the soil is naturally sandy or has a gravel layer close underneath the surface we are lucky. Heavy clay soil that lays rather level must be handled carefully to prevent water standing in it and so building up alkali and preventing the necessary air to enter the soil. Many gardeners do not realize that good ground for growing plants should be made up of about half disintegrated rock and humus, about one-fourth water and one-fourth air.

Adding organic matter such as manure, peat, compost and leafmold, if it is thoroughly and deeply mixed with the soil, will help much to correct drainage difficulties. This humus breaks up the compact layers and allows excess water to drain out, at the same time through its sponge effect, it will hold the necessary water. Sand and gravel added to a heavy clay will help if enough is used and it is thoroughly mixed with the existing soil. A little may do more harm than good.

Throwing tin cans, rocks and gravel in a hole under plants that are planted in heavy soil, to provide "drainage" is seldom really effective, for it might allow a little water to drain down from the plant above but will soon fill up and then be no more effective than though the plant were planted in an iron kettle.

The surface of the ground should, first of all be graded so that water does not stand there and gradually soak in. Then extreme care should be used in these difficult places to avoid overwatering. The only way that it is possible to really know how wet the soil is after a given amount

of watering, is to dig in occasionally and see.

In extreme cases the only real solution to the problem of adequate drainage is to lay tile which will allow excess water to drain out to some lower level.

Finally, if it is impossible to assure proper drainage, only those plants which will tolerate water around their roots should be planted. Newly planted Colorado Cedars and American Elm are especially susceptible to soggy, poorly drained soil. In very difficult places only Cottonwood, Willows or Tamarix might be able to survive. In general those plants which naturally grew on steep hill-sides will not tolerate a soggy soil, and those that naturally grew along streams or lakes may.

## A LIVING GIFT

At a recent meeting, the members of The Civic Garden Club of Denver honored their retiring president, Mrs. Benjamin Lofquist, Jr., with an unusual gift—a unit of two hundred fifty seedling evergreens from the United States Department of Forestry. These will be planted by the Department in some burned-over area in Colorado where, in the name of the recipient, they will grow into permanent beauty and usefulness.

The presentation was made by Mrs. Mae Bond Bertagnolli with the following verses:

We dedicate a gift for you  
Not made of human toil,  
But fashioned by the hand of God  
In His creative soil.  
Our lives will pass and time will age,  
But still your trees will stand,  
Become a part of Nature's cloak,  
Conserve the precious land.  
Their constant leaves will stand erect  
To greet each glowing morn,  
Their noon-day shadows point the way  
For children yet unborn.  
"Lift up your eyes unto the hills,"  
Whose newly-planted slopes.  
Fringed with verdant beauty  
Enshrine our fondest hopes.





*View on the So. St. Vrain Forest Highway with Long's Peak in the background. A number of horseback trails were constructed along this highway at the Estes Park end of the route.*

## ROADSIDE DEVELOPMENT OF COLORADO HIGHWAYS

By CLYDE E. LEARNED

**I**N the selection of a roadside development program for our great State of Colorado, it is suggested that the initial program be for the most part confined to a number of selected routes on which the travel and natural scenic conditions are such as to afford a good opportunity for success. Later, if the initial ventures prove successful, the work could be expanded to include additional highways—it also being quite probable that other communities in the State might become interested and follow suit and improve the entrances to their cities or towns and roadsides in their respective vicinities.

Two classes of highways are suggested for improvement. The first group would include a number of the main highways approaching Denver on which it is believed that the expenditures and roadside improvement would be justified. The justification might include the following:

1. Improvement of safety conditions along the highway.

2. Conservation of the natural beauty of the highway by preventing erosion, thereby reducing future maintenance costs and repairs. On many of our highways we find that nature needs only a small amount of aid in order to restore a scarred roadside in a few years.

3. Control of weeds and reduction of fire hazard.

4. Protection of the recreational value by installing roadside parking areas. The principle requisite for these parking areas would be adequate right-of-way, a number of shade trees, tables and benches, fire places, sanitary water supply, and toilets.

The second group of highways would include those leading to the recreational and camping areas which are for the most part located in the canyon and mountain regions west of Denver. The first group of highways would ordinarily serve the tourists, whereas the second group would serve the local residents as well as



the tourists and recreation seekers from all over the nation.

The roads to the west—to the regions of healthful recreation—are now subjected to a tremendous traffic flow each week end and holiday during the vacation season. These mountain and canyon roads are usually endowed with a great deal of natural scenery and as they lend themselves to landscape treatment and campground development, their improvement is largely a question of conservation.

Items which are considered in these improvements include selective cutting and thinning of trees and shrubs to obtain usable areas and pleasing vistas, clean-up and removal of stumps and unsightly trees, obliteration of borrow pits and traces of old road and other construction scars, flattening and rounding cut and embankment slopes, topsoiling, seeding, and, in a few instances, sodding. These improvements would also include table and bench units, fire places, development of a water supply, garbage disposal by barrels or pits, and installation of toilets, as well as the building of scenic overlooks at locations of natural advantage.

On all new highway construction, the road-building agencies should be encouraged to save topsoil, if practicable, to cover the new bare cut and



*Above: Boulder canyon Tunnel. Stone masonry portals have materially improved the appearance of these tunnels.*

*Below: Stone masonry drinking fountain on the Berthoud Pass Forest Highway.*

*Bottom of page: These concrete table and bench units have proved to be very popular and very durable. (They can't be chopped up and burned.)*





embankment slopes and to remove as many of the old road-building scars as possible. Planting of trees and shrubs, as well as seeding and sodding, not only adds to the ornamental value of the highway, but pays for itself in preventing erosion and assisting in weed and fire control.

On the urban portions of these approach roads which ordinarily will be a 4-lane divided construction the planting of trees and shrubs along



the center median strip and along the outside edges of the right-of-way should be encouraged. The planting of trees and shrubs in these areas creates an effective sound barrier which reduces traffic noises and furnishes an attractive screen which restores privacy to the adjacent homes, which is not objectionable to the abutting property owners. Experience indicates that where roadside improvement work is performed in both rural and urban areas, there is a decided tendency on the part of



the adjacent property owners to tidy up their premises.

Forward-looking states, including Connecticut, Michigan, Ohio and Texas, have made a commendable effort to develop their roadside areas to the point where their convenience and beauty are a real asset to the State road-building and public relations programs. As Colorado is one of the nation's leading tourist and recreational States, it would seem that we should make more of an effort to construct more highways which would be pleasing to the eye and which would have service facilities built into the highway.

The work of highway improvement cannot be regarded as finished until unsightly construction scars are elim-

(Continued on Page 37)

*On left, above: View of a slope in a twin cut about a mile north of Woodland Park. Although a furrow ditch was constructed along the top of the slope heavy rains caused finger washes in the disintegrated granite material which erodes very easily. Below: View on the opposite slope in the same cut as above. This slope was covered with 4 inches of top soil and seeded, then covered with a cotton mesh. Result, no erosion and reduced maintenance cost. Right, above: View about 5 miles north of Woodland Park on the road to West Creek. All slopes in this project covered with about 4 inches of top soil which are now covered with vegetation, reducing maintenance and improving appearance. Below: An experiment was performed on the Woodland Park-West Creek road in the highly erosive soils. This slope covered with 4 inches top soil, seeded and covered with an open mesh cotton cloth. Results excellent.*





## REPORT OF 2ND TEN YEAR PLANNING COMMITTEE

THE Committee appointed by President Fred Johnson to recommend a second ten-year plan for the Association has met several times and each member has given considerable thought to the proposition between times.

In general they recommend no radical change in the objectives as outlined ten years ago, the principal modifications being a readjustment of emphasis on various projects because of changing conditions.

1. As the Green Thumb is our principal means of contact with our members and also our chief item of expense it came in for the greatest amount of discussion. The general consensus was that we should keep to the middle road, as in the past, not attempting to drastically cut the cost of publishing it or go out for any great campaign for new members. It was thought best to devise every means possible to gradually increase the membership and get the benefits of the magazine and the association's work to more who need it, but it was agreed that we could never hope to pay the whole cost by memberships; which would necessitate a continual campaign to make up the deficit by auctions, garden tours, gifts and other means. It was agreed to keep the quality and size up so far as was possible within the financial ability of the Association.

2. It was generally agreed that free bulletins and leaflets might be published at times, when the necessity arose, and the financial situation permitted, generally encouraging co-operation of interested organizations and corporations, such as a Rose bulletin, co-sponsored by the Rose Society or a planting leaflet co-sponsored

by the Nurserymen's Association, street trees, co-sponsored by the City Forester.

3. Even though the Denver Botanical Gardens Foundation is a reality and accepted by the city, it was felt that this Association should continue its support to the new organization as long and in as many ways as needed. The Botanic Garden Foundation can never absorb all the functions of the Colorado Forestry and Horticulture Association so long as it is city supported, for this Association will always have conservation and horticultural projects which it should support. The Association should continue to help the new organization by staff help, library help, or headquarters help.

4. Even though Horticulture House and the Library are not used as much as possible, we feel that the Association will always need a headquarters, and should never be under obligation to any institution, person or governmental agency so that it may be free to promote the things that should be promoted. Its freedom is its glory. More publicity should be given to the helps to gardeners which are available at Horticulture House and the fullest use should be made of the facilities for committee meetings and meetings of associated groups. There should be a special committee to arrange a continual series of seasonal exhibits at Horticulture House and publicity be given them.

5. It was agreed that the Roadside Improvement program is very important and should continue to have a place in the Association's objectives. At present Mr. Pesman's committee is again actively investigating ways of promoting better roadsides.



6. Horticultural education might be divided into education for student, such as horticultural courses in the colleges, gardening education in the public schools and garden and nature education for groups like Campfire Girls, Girl Scouts and Boy Scouts. These should all be promoted as much as time and necessity demand. Garden education for home owners was thought worthy of being given a separate section (see No. 13 below).

7. The promotion of more and better parks both in the towns and surrounding communities was considered as one of the important projects to be promoted, as evidenced by the new and active committee on Metropolitan Denver Parks with Mr. DeBoer as chairman. Denver and other Colorado communities are growing rapidly and often natural groves of trees, attractive stream banks and other natural parks sites are being leveled off and destroyed with no provision for the very necessary open park areas. This situation should be corrected by calling all new communities' attention to the necessity of advance planning.

8. Largely through the efforts of this Association there is now an official State Parks Advisory Council to advise the State Land Board of the needs for state parks. A small committee of this Association should be maintained to cooperate with this state committee in any way possible so that we may eventually realize a suitable setup of state parks in Colorado.

9. This Association should never lose its interest in proper management of our adjacent National Forests, for much of our life and living depends on a continued and regular flow of water from these forested high lands. Suitable control on the cutting of Christmas trees and greens is necessary. We must resist all at-

tempts to take forest lands which are needed for the benefit of all citizens away from federal management and put into private and often selfish hands. For efficiency in handling it might be well to suggest the consolidation of more state lands within the National Forest, through exchanges between state and federal government.

10. Conservation must always be one of the major objectives of an association such as ours. This must include conservation of our important soil, forests, water, scenery and wilderness on a local, state-wide and national basis.

11. A live legislation committee should be maintained to keep their eyes and ears open for legislation detrimental to the objectives of this association and to promote needed new legislation, such as a suitable State Park setup.

12. It was generally agreed that an annual Rocky Mountain Horticultural Conference could do much good by bringing together similar interests over our area and bringing in stimulating speakers to promote better horticulture in the area. We should attempt to reach a larger area to benefit from the Annual Conference.

13. It was generally agreed that special emphasis, this coming year at least, should be given to education for the many new home owners. This can be done by making the material in the Green Thumb simple and directed at these people, by a series of lectures in outlying sections, by more and better newspaper, TV and radio programs, and by encouraging the greater use of Horticulture House. The new committee with Kenneth Wilmore as chairman is planning to coordinate these efforts. Mrs. Conrad's membership committee plans to make an organized effort to select experts in each community to follow



p new members gained through the lecture series and help them to become better gardeners.

14. It was agreed that the City Forestry program warranted separate mention. Many of the trees now planted in the older communities are badly in need of care by trimming, pruning, fertilizing and watering, and information should be made available for new home owners so that they might profit from the mistakes of the past and by new information to avoid the planting of unsuitable trees, the crowding of large trees, interference with overhead wires and out-of-scale plantings.

15. The garden tours as arranged for the past few years should be continued as a permanent project, not only because they are important for their income but because they are a source of information on good garden design and maintenance for the new home owners.

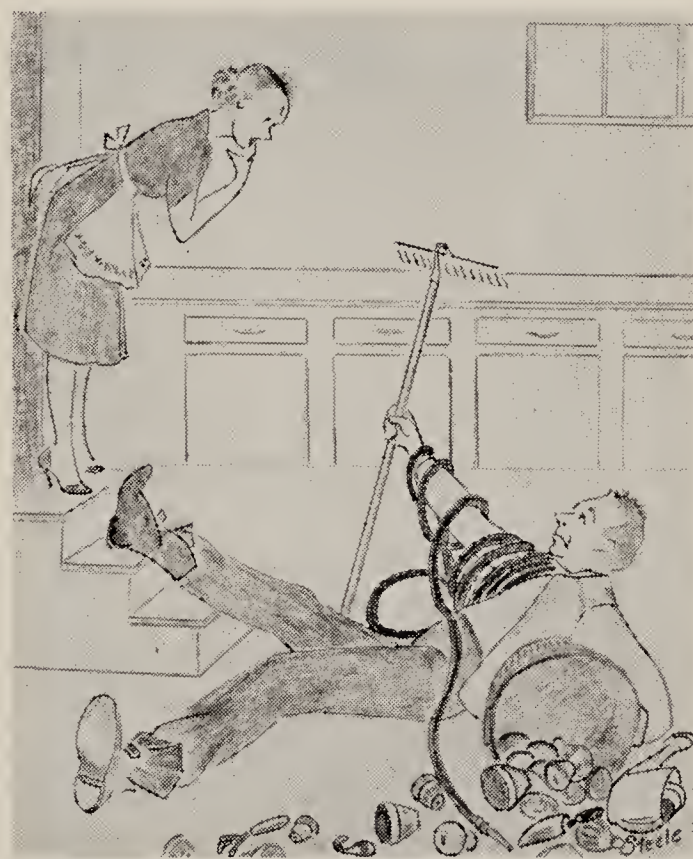
16. This Association should certainly be concerned with the present nursery situation and do everything possible to encourage the local firms to grow the new and better plants so that it will not be necessary for home owners to buy questionable material from out of state. Experimentation should be encouraged through the botanical garden, commercial nurseries and governmental agencies to develop more and better ornamental plants suitable for use in our climate.

17. This Association should cooperate with the various garden clubs and plant societies to help establish a garden center when the present location must be abandoned, possibly in connection with the Botanic Garden.

The Committee felt that since the organization is not for profit, but to promote better living in the state through better gardens, better handling of street trees and natural

forests and the conservation of natural resources necessary to life and a good living; that it would always be necessary to supplement the income from memberships with income from benefits and gifts. To make the assembling of this supplementary income easier it would seem necessary that more of the members of the Association be active on the various committees.

Members of this Committee were: Earl Sinnamon, John Swingle, Vella Conrad, Anna Garrey, Fred Johnson, Mrs. John Evans, S. R. DeBoer, M. Walter Pesman, Sue Kelly and George W. Kelly, Chairman.



*"Why, Red, it's sure nice to see you getting interested in gardening so early: but couldn't you have taken just a little more time and not run the risk of a broken leg?"*

Most fruits have better flavor and texture if allowed to mature on the tree, according to the American Association of Nurserymen, this accounts for the expansion of home fruit growing in recent years.



# CLIMATIC FACTORS AFFECTING TREE GROWTH ON THE HIGH PLAINS

By A. C. HILDRETH

Cheyenne Horticultural Field Station, Cheyenne, Wyoming

*Extracts from paper presented at Midwest Shade Tree Conference, Denver, Colo., 195*

## PART I

The high plains country is different from the East, Midwest, South and Far West. This does not mean that our region is better or worse. *It is simply different.* Its peculiarities of concern to arborists arise primarily from our climate. I want to point out some of these peculiarities and their influence on the behavior of our trees, our selection of species and our growing practices.

First, let us consider our history, because our history indicates our stage of arboricultural advancement and because our history itself has been influenced so strongly by our climate. The high plains was the last great area of the United States to be settled by the white man. Within the lifetime of people who are now living, Indians hunted buffalo where Denver now stands. The East and Midwest were settled first. Then people passed through the forbidding high plains on their way to settle in Utah, Oregon, and California. It was only as an afterthought that pioneers undertook to make permanent homes in this part of the country. At the time the first white settler moved into Denver the Atlantic seaboard had already had 250 years in which to develop its arboriculture. We got a late start—by exactly one-fourth of a millenium.

But our late start does not even tell the whole story. Early settlers on the eastern seaboard found a soil and climate not greatly different from that of their homelands in western Europe, where tree-growing had long been practiced. Their trees and methods were easily transplanted to the

new world. The entire Atlantic coastal plain, the Appalachian Mountains, and much of the land in the Midwest was naturally forested and settlers in these areas always found conditions suitable for tree planting and a wide variety of trees ready for domestication.

Pioneers on the high plains had no reservoir of plains tree-growing experience on which to draw and no forests from which to select adapted species for cultivation. It is true that there were trees in the Rocky Mountains, in the Black Hills and along rivers across the plains. But the environment of these native tree areas was quite different from that of the open plains where the pioneers lived and carried on farming and grazing. Settlers soon found out that trees transplanted from nearby mountains or river banks were likely to be disappointing and that trees and cultural practices imported from the East and Midwest often were unsuited to our soils and climate.

Plains settlers could not draw on the old world for tree species and cultural methods. The parts of the old world most like ours in climate and soil are the plains and plateau of Central Asia. People in those countries had done little to develop arboriculture. In fact, nowhere in the world were there adapted trees and tree-growing practices that could be transferred bodily to our high plains. Our people had to work out their own problems in an unfavorable region under unfamiliar conditions. What development in tree growing we have made has been



natter of trial and error; search and research; finding here and there a species that would survive; transplanting a wild species from the mountains; modifying an eastern practice to suit our conditions.

We do not yet have arboretums for testing trees in this region. Such testing as has been done has been carried on largely by nurserymen seeking better species for their trade, by tree-minded individuals and by city parks. Some organized research on trees has been done by state and federal experiment stations. However, all such efforts have been too meager because our citizens have not been fit to give such work the support it needs. This is unfortunate because no other part of the United States has such great need for research on trees and their management as has this high plains area. It looks now, with the establishment of an Arboretum in City Park, as though this is pretty well on the go, and we hope that the movement will continue to grow until we can have a place where we can all go for correct, authentic information on anything concerning ornamental horticulture or shade trees.

More than any other single factor, climate limits the kinds of trees that can be grown in a region and determines the practices necessary for growing them. By getting acquainted with some of our climatic peculiarities you will appreciate some of our problems in tree management and will understand why you see or don't see certain trees growing here.

### Effects of Cold Temperature

This is a land of cold winters. Severely cold temperatures occur often enough in Colorado to limit our planting list to species having more cold hardiness than is needed for most parts of the United States.

When we attempt to say what spe-

cies of trees will or will not grow in a cold climate we run into the matter of individual differences in trees. Just as individual trees of a species may vary in form so may they differ also in hardiness to cold. This difference is not due to soil or care but is an inherent characteristic of the particular tree. Such variation is both the hope and despair of arborists. It is our despair when we find a tender individual in a species generally hardy. But variation works both ways and the encouraging thing is that in a species that is generally tender in cold climates there will be an occasional tree that is hardy. By selecting such hardy individual trees and propagating them vegetatively, by cuttings, budding, or grafting, we can grow many supposedly tender species in cold climates. A plant breeder might use such hardy individuals as parents to develop hardy strains that ultimately could be grown from seed.

Even though we are dealing with hardy trees, the care given them has much to do with their resistance to low temperatures. Overcrowding, nutritional deficiencies and injury from diseases and insects lower the vitality of trees and make them less hardy to cold. Late-summer irrigation and overstimulation by excess fertilizers delay the normal fall maturity; as a result early freezes may catch trees in an immature and unhardened condition and cause severe damage. This type of injury is particularly important in the short growing seasons prevalent in this part of the country.

Our short growing seasons create other problems in tree growing. Before deciduous trees have shed their leaves in fall we sometimes get a wet snow that causes severe breakage. Training young trees to develop strong frameworks, bolting, and cabling to protect improperly trained trees and regular thinning out of the



small growth toward the ends of the branches are means of preventing this type of damage.

Another result of our short growing seasons is killing of young shoots and leaves by spring freezes. Fortunately, such damage does not occur often and the trees usually recover with only a minor setback. The only remedy is to plant lazy trees that do not wake up early. Species differ a great deal in the time at which they come out of their dormant condition after the weather warms up in spring.

### Effects of Aridity

This is a dry region. On the eastern seaboard each season receives about the same amount of precipitation. On the high plains all seasons are dry but the winters are particularly so, there being only about one-third as much precipitation at Denver during winter as during spring or summer. This winter precipitation may fall mostly as light snows which are quickly evaporated by our thirsty Chinook winds without adding any appreciable moisture to the soil. Thus the soil around our trees is likely to be very dry during winter and early spring in contrast to the near saturation typical of eastern soils at these seasons.

Our perennial drought conditions have led to two kinds of tree culture which we designate as "dry-land" and "irrigation." Dry-land trees grow without any additions to the moisture that falls directly on the land as rain or snow. In most of the high plains there is enough precipitation to grow trees provided they get the benefit of all that falls. Therefore, we try to save all the moisture for the trees. Terracing and planting on contours are means of preventing runoff. Another dry-land practice is a type of tillage that leaves the soil surface loose and rough so that water will soak in rather than flow away. Most

important of all water-saving practices is keeping the land in the root zones of the trees free from weeds and grass so that these competing plants will not rob the trees of moisture.

Dry-land trees are generally planted wider apart than the same trees would be if grown in a humid climate or under irrigation. Wide spacing is necessary to give the roots a greater area to range over in search of moisture.

Not all species that withstand our cold winters are suited to dry-land culture. Species vary considerably in their tolerance of drought. Among the dry-land trees adapted to this climate are American and Siberian elms, honey locust, hackberry, green ash, Russian olive, several junipers and pines, and such shrubby species as common buckthorn and Siberian peashrub. At the other end of the scale are the willows and poplars, none of which survives long under dry-land conditions. Most other trees that grow in this region belong somewhere between these extremes in moisture requirements.

### Effects of Low Humidity

Our atmosphere is dry. This dry air together with our dry soil puts trees under considerable stress for moisture in winter. Consequently we find it advisable to do some unorthodox things such as watering evergreen trees and shrubs, birch trees and lawns during the winter season.

Our dry air has one great advantage for plant growers—it is unfavorable for fungus diseases. This air is strikingly free from the blight scabs, mildews and leafspots that attack trees in humid climates. In fact we seldom find it necessary to apply a fungicidal spray or dust to any kind of tree. This advantage is partially offset by our population of mites and insects. Our dry climate is favorable





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for spider mites, scales, aphids, and certain other insects that attack trees. We must be on guard to keep these pests under control.

### Effects of Light

Our sunlight is very bright. At Denver we have a mile less dust, smoke and water vapor for the sun to shine through than at sea level. Not only do we have bright sunlight but we have an abundance of it, particularly in winter.

Our bright winter sunshine and dry atmosphere explain why we have so few arborvitae, yews and broad-leaved evergreens in this part of the country. Such conditions are unfavorable for these plants and here they must have shade and irrigation in winter.

Bright winter sunlight together with low temperatures make our conditions ideal for winter sunscald. The low-angled, winter sun striking the south and southwest sides of exposed tree trunks warms up the tissues so that growth activity starts. When a sunny day is followed by a very cold night the active tissues are killed before they have time to readjust them-

selves to low temperatures. We have a great deal of sunscald on smooth-barked trees such as lindens, poplars, mountain ash and young maples whenever such trees are headed high.

Our intense summer sunlight is efficient and a little of it goes a long way. Consequently plants in this region tolerate more shade than the books say they will. In pruning we recognize that it is not necessary for us to open up trees to the customary extent in order to admit sunlight to the interiors. On inside branches of rather dense trees leaves get enough sunlight to function normally and fruits color well.

Our clear atmosphere not only insures a greater quantity of sunlight but it also influences the quality of the light. Here, more of the sun's ultraviolet rays reach the earth than in a humid climate. Ultraviolet light has the effect of shortening the growth of plants, making the internodes short and giving the shoots the appearance of having been somewhat telescoped.

The second part of this talk will follow in an early issue.—Ed.



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## MEN'S GARDEN CLUBS

By JAMES B. STEWART

**T**HERE are nine garden clubs for men in the Denver Metropolitan Area and, interestingly enough, no comparable area in the U.S.A. has more than that number. A distin-

### CHERRY HILLS

guishing feature of these clubs is that they are made up of small, intimate neighborhood groups thus permitting meetings to be held in the homes of members.

### DENVER

Meetings are informal, the general pattern being — the transaction of business; the introduction of a guest who speaks on a garden subject; the discussion period and the airing of

### EAST JEFFERSON

problems; and finally the greeting of the wife of the host who has been busy preparing the ice cream, cake and coffee.

### ENGLEWOOD

At this point may I endorse the feeling expressed by a fellow "Green Thumber"? He said, "The common interest aspect of our gatherings com-

### GREEN MOUNTAIN

bined with delightful neighborhood contacts, are such that I find myself aglow with anticipation each time our club meets."

The nine little clubs recently banded together; formed THE MEN'S GARDEN CLUBS OF COLORADO, INC., and elected Mr. Rus-

### LAKEWOOD

sell G. Myer as its first President. That "organizer of Men's garden clubs" says that the movement is but in its infancy and he brags that one of these fine days there will be a

### UNIVERSITY PARK

men's garden club wherever the "good earth" women of Colorado have one. If one of these groups meets in your community call up the president and

### WASHINGTON PARK

get particulars of their meetings and plan to attend. If none are near you get a group of men gardeners together and call on Mr. Meyer, BE 3-242 to help you organize a new group.

### WHEATRIDGE

There follows a list of the nine club presidents:

Earl Loser, SU 1-3345, Cherry Hills Men's Garden Club

Wayne Scott, PE 5751, Denver Men's Garden Club

Joe Esterman, WE 5-1357, East Jefferson Men's Garden Club

Allen Lovenburg, SU 1-5015, Englewood Men's Garden Club

Charles L. Whittinghill, BE 3-3038, Green Mountain Men's Garden Club

William Krauter, Wakeeney Park, Men's Garden Club of Lakewood

Edward Rohrer, SK 6-3767, Men's Garden Club of University Park

Carl Peterson, PE 4382, Washington Park Men's Garden Club

Jack Bennett, HA 4-5110, Men's Garden Club of Wheatridge.

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## The How-To Book on Strawberries

Technical gardening knowledge can be written in an interesting way, and has been in this little book. You can't put it down when you start it any more than you would a good novel.

The facts given are sound gardening practices (and except for the usual page about using lime) it applies very well to our Rocky Mountain Plains conditions. The little sketches liven it up, the type is large (for the benefit of old eyes) the pages are not crowded and the advice is so clearly and humorously given that it is a pleasure to read. Here is a typical page.

"BULLETIN. More damage is innocently done to new strawberry beds by the improper application of the fertilizer than is caused by all the other combined ills that can befall the patch.

### LIST OF THINGS NOT TO DO

Don't use FRESH manure of any kind around strawberries.

Don't use hen manure near strawberries unless separated from that planting by a good three years.

Don't set strawberries in land that has been fertilized more recently than two weeks before planting.

Don't fertilize in dry weather.

Don't apply chemical fertilizer broadcast over the rows.

As a matter of fact don't plan to fertilize strawberries at all, except in extreme cases. Manage your soil so you won't have any extreme cases."

The advice above is worth the price of the book (\$1.50) so you had just as well send for it and get the benefit of the other suggestions and have the fun of reading it.

Send to the author, Robin Wyld, The Berry Patch, Honeoye Falls, N. Y.

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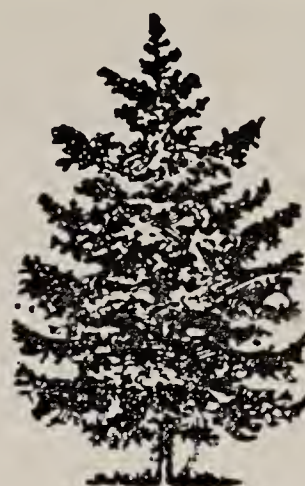
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nated and the natural beauty of the roadside has been restored and reasonably enhanced.

In connection with any State roadside improvement program, it should be mentioned that Federal-aid funds are available for this type of work. In fact, the U. S. Bureau of Public Roads for many years has encouraged this type of improvement work.

Garden perennials such as strawberries should be protected with a straw mulch after planting so that they can acclimatize to the location before the sun dries out the new plants.

Trees are used on the home property for shade, to frame views, to provide points of interest, as screens, and to provide backgrounds and windbreaks, according to the American Association of Nurserymen.

## SEE COLORADO

### WILDFLOWERS

The Civic Garden Club announces that they have secured Mr. Harold Roberts to show some of his beautiful slides of Colorado Wild Flowers at their regular meeting March 5th. They have obtained the use of the comfortable Phipps Auditorium in the Museum Building at City Park so that there will be room for any one who cares to attend. This event is free and everyone is invited. There will be no tedious "business" to bore you. You will enjoy this program.



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*Porcupine in the foothills. He turns tail and waddles slowly away to a hole under the rocks, confident that no one in their right mind is going to attack from the rear.*

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### SKUNK AND PORKY

**T**WO interesting animals have persisted in our wild places, because of unique protective devices.

No one wants a second meeting with either the skunk or porcupine when they resent one's approach.

They both know their weapons and are usually quite cocky about parading around where they can be seen.

They both have a failing of wanting to parade down a smooth road at night, and so are often killed by high speed cars.

It is not a nice thing to hit either, for the scent of the skunk and the quills of the porcupine will remain for a long time. A wise dog will soon learn to leave them both alone.

Skunks are generally harmless and do their part to keep the balance of Nature. They have been trained (when deodorized) to take the part of house cats in controlling mice.

There is some debate as to the

value of porcupines, but when there was a normal number of coyotes and mountain lions they were naturally kept in check where they would do little harm. When they become too numerous they can destroy many pine trees by eating off the bark, and they annoy cattlemen by getting inquisitive cows' noses full of quills. There was once the story that they should be protected as they were the only animal that a lost person could kill with a club, and eat. This is not a questionable practice.

The porcupines do not have to be swift, so they waddle along over the forest floor or hang in trees unconcerned by any who go by, but when approached too close their large tail can flip so fast as to fool the eye, and so give the basis for the story that they can "shoot" their quills.

If you run across one of these interesting animals in the hills, be quiet and watch them for a time. You will learn much.



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# *The Green Thumb*

COLORADO'S GARDEN MAGAZINE



HOW TO SELECT PLANTS TO FIT OUR CLIMATE



# WINTER—A JEWELER AND ENGRAVER

Compiled by JAMES B. STEWART

“WINTER is an artist who clears the earth, silences noises, and gives nature the perfection of a rare crystal. Summer is a painter: winter is jeweler and engraver.”—*Anon.*

“Take winter as you find him, and he turns out to be a thoroughly honest fellow, with no nonsense in him, and tolerating none in you, which is a great comfort in the long run.”—*Longfellow.*

“I used to moan over the barrenness of the winter landscape, but I now know how to love it as a revelation, not to hate it as a desolation. Only in winter is it possible to see the fairy trees etched branch by branch and twig by twig against the glimmering gray. Only in winter may we descry ‘the jagged shadows of mossy leafless boughs.’”—*James Douglas.*

Walk fast in snow,  
In frost walk slow.  
And still as you go  
Tread on your toe.  
When frost and snow are both together,  
Sit by the fire and span shoeleather.—*Old Saying.*

Every fern is tucked and set,  
’Neath coverlet,  
Downy and soft and warm.

*Susan Coolidge—Time to Go.*

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*City Park, Denver—Photo by Dr. Cuthbert Powell.*

These Winter nights against my window-pane  
Nature with busy pencil draws designs  
Of ferns and blossoms and fine spray of pines,  
Oak-leaf and acorn and fantastic vines,  
Which she will make when summer comes again—  
Quaint arabesques in argent, flat and cold,  
Like curious Chinese etchings.

*Thomas Bailey Aldrich—Frost Work.*

Under the snowdrifts the blossoms are sleeping,  
Dreaming their dreams of sunshine and June,  
Down in the hush of their quiet they're keeping  
Trills from the trostle's wild summer-sung tune.

*Harriet Prescott Spofford—Under the Snowdrifts.*

What miracle of weird transforming  
Is this wild work of frost and light,  
This glimpse of glory infinite?

*Whittier—The Pageant. St. 8*

Up rose the wild old winter-king,  
And shook his beard of snow;  
"I hear the first young hare-bell ring,  
'Tis time for me to go!  
Northward o'er the icy rocks,  
Northward o'er the sea,  
My daughter comes with sunny locks:  
This land's too warm for me!"

*Leland—Spring.*

"Winter lingered so long in the lap of spring, that it occasioned a great deal of talk."—*Bill Nye, Spring.*



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# The Green Thumb

Vol. 11

MARCH, 1954

No. 3

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## THE COLORADO FORESTRY AND HORTICULTURE ASSOCIATION

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355 Bannock Street

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*Pat's Hole and Steamboat Rock in Dinosaur National Monument.*

## SEE FOR YOURSELF

You may have wondered what the facts are concerning the value of the canyons of the Green and the Yampa in the Dinosaur National Monument for recreation, scenic beauty and unspoiled wilderness. All who have seen these canyons are unanimous in wanting to preserve them. Mrs. Anna Timm, chairman of our outdoor trips

committee, is arranging a trip to the area that is easy enough for anyone yet will get the participants into parts of the Monument where they may appraise its value. The trip will probably run from May 29 to June 5.

Call Mrs. Timm, PE 5565, for particulars as to equipment and cost.





Colorado Forestry and Horticulture Association

Organized in 1884

"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to make available correct information regarding forestry, horticultural practices and plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."

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MARCH SCHEDULE

- Mar. 7, Sunday. Snowshoe trip up old Squaw Pass road.
- Mar. 21, Sunday. Snowshoe trip to Hessie, and Jasper, Diamond or Lost Lake.
- Mar. 28, Sunday. Roxborough Park to look for the first wildflowers of spring.
- Apr. 4, Sunday. Window Ledge from Squaw Pass.

There are tentative plans for a trip into Utah to see the Natural Bridges and Monument Valley in last of April. See story about the trip into the Dinosaur Monument in late May.

Call Horticulture House, TA 3410 or Mrs. Timm, PE 5565, for details of all trips. Register a few days in advance so transportation can be arranged.

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## CHERRY DISCOVERS MARCH WEATHER

**M**ARCH 6, A.M. After the cold weather we had in February, today seems like spring. I really believe that the flower buds on the maple trees are a little larger than they were last week. There is some snow on the ground on the north of the garage, but I'm sure that I could dig in the soil on the south of the house, at least. I'm going out after Red gets home for lunch and see if I can get him to help me plan for our gardening next summer. I can't stand to have all that dust and mud from our bare lot being blown and tracked into the house, I want a lawn first of all.

March 6, P.M. After lunch and Red's siesta I dragged him out into the yard and he agreed to help get in a lawn; in fact he rushed into the garage in his usual impulsive way, grabbed a shovel and started digging. He uncovered a lot of rubbish which dampened his enthusiasm considerably, and then his Dad came by and told him that the soil he had would never grow grass without a lot of improvement, so he didn't know what to do. We had a conference, three-way, and finally decided that we would dig out all the bad stuff in half our grounds, add manure and really prepare that part and see it in April, then just rough grade the other part and plant it in rye to hold the dust until we could really prepare the soil later to seed in September. His Dad says that that would insure much better lawn and less weeds than though we got in a hurry and planted in poor soil.

By the time we had decided all this it was getting late and Red was tired so we decided to leave it till tomorrow. It was getting a little cool anyhow and that cooled our gardening fever a little.

March 7. Strange things Colorado can do to the weather. We were excited about its being spring yesterday, but now it is snowing a little and the wind is blowing a gale. I believe that our gardening will be done in front of the fireplace to day. \* \* \* Mother braved the storm and came over just before lunch. She saw all the new seed and nursery catalogs laying around and started telling us about all the wonderful gardens that she had seen last summer and trying to get us enthused about getting our garden planned. We finally got out some blank paper and each one of us made a list of the things that he wanted in our yard this year and Mother drew some elaborate sketches of fancy gateways and statuary that we should use somewhere. After all of us conceding a few points we finally got the combined list down to a size that would fit (with some careful planning) in our small plot of ground and our pocketbook. \* \* \* Red's Dad came over in the evening and we set him to working out just what plants would make the effects that we wanted. Everytime I picked out a most beautiful plant that was illustrated in one of the catalogs that we had, Dad Dendron would look at it and snort " 'twont grow here, that plant likes an acid soil and lots of cloudy weather." Finally we had to refer to "Rocky Mountain Horticulture is Different" to find just the plants that would give us the ultimate size and effect that we wanted. We made a list of the things that we finally thought should be started first: the trees, evergreens and some shrubs, and next week I will phone around to a few local nurseries and see if they handle what I want. (I'll keep the catalogs handy in case I have to send off for anything.) Why don't the catalogs tell when things are not hardy in Colorado? (Maybe they don't know we grow gardens in this part of the country.)



March 13. Another nice day, like a week ago. (Isn't it queer how many times the weather is much the same on the same day of the week for three or four weeks in a row?) Dad Dendron felt the call of the weather this morning and was over early taking up where Red got tired a week ago. He can turn over more soil in an hour than any man I ever knew. It makes my back tired to watch him, but he just sweats and enjoys it. (I wonder if those sweats that he works up in the garden, has anything to do with the fact that, in spite of his age, he is never sick.) He had half the front yard spaded by noon and a pile of rubbish and poor subsoil piled up to haul off that looked as large as the load of manure that we had hauled in.

Just after lunch a man came by selling fertilizer, but he could give no references and even had no card so we told him that we had all the fertilizer we needed, from a man that Dad Dendron had recommended. (A neighbor of his when he was on the ranch.) Red still had a sore back from his efforts a week ago so he dug up an excuse of business downtown and managed to stay away until his Dad had all the hard work done, then he came in and threw a few shovels full of dirt and I heard him telling the neighbors of the fine job of spading that "we" have done.

March 14. Today is not quite as bad weather as a week ago, but it is not such as to encourage garden work. There was a little snow and wind in the night and it was interesting to see how it stayed on our newly spaded lawn while the neighbor's place was blown clean.

We all went over to Red's folks' place in the evening and found Mother Dendron looking over her stored bulbs. The glads looked fine but she was treating them with DDT to kill any overwintering thrips. The dahlias were starting to sprout a little so she was moving them to a spot under the house where they would not be so warm. I hope that they don't freeze under there. She was fixing flats of peatmoss to start her tuberous begonias in. I thought that it was a little early, but she likes them to have a good growth when they are set outdoors in June. Her begonias were wonderful last year over behind the garage.

March 20. Another Saturday, but this week the ground is so wet from melting snow and the little rain that we had that I'm afraid that we can't do any work in the garden. A couple of bundles of trees and shrubs were delivered yesterday, that we thought we might plant today. There is probably little frost in the ground except on the north of the house, but the soil is just too wet to dig in. I'll have to call up Dad Dendron and see what to do with these plants. \* \* \* Dad Dendron told me to take all the plants that we had received out to that dry patch of soil south of the garage where we had the tomatoes last year and dig a trench to "heel" them in. He explained that the most damage happened to trees that were out of the ground by having their roots (and sometimes tops) dried out. He suggested covering the rose plants completely with soil for a week or two. Then he warned me to dig my holes first, when the soil was ready to plant, and keep the roots of everything covered with wet burlap or a rug until they were actually planted in the new place and watered in.

I didn't get any sweet peas planted on the 17th, according to tradition. I wonder if they will really know the difference if I don't plant them until tomorrow? After all what does a few days mean to a seed at this time of year.

I hinted around to Red this afternoon and finally got him to take the



lawnmower downstairs and try to get it in shape for next year's mowing (that we hope to have). He was making a big noise down there for a couple of hours. It is quiet now. I'll bet he has "snuk" off and I'll have to scoot up the lawnmower parts next week and take them to a lawnmower man to see if he can put them together again.

March 21. The weather is not too bad today but still a little cool. I got out all the other garden tools that we have collected from both families and our friends and got Red interested in oiling them, sharpening them and even doing a little painting. I got him an especially nice lunch to show that I appreciated his efforts.

This afternoon we all rode around town looking at the grounds around other, older places about the size of ours. We picked up a lot of good ideas that we may modify to fit our lot and pocketbook. It is amazing how many homes still had little but lawn in after two or three years, and how few others seemed to have any idea of what they wanted to do with the ground around their homes. They should attend those classes that Herb Gundell, Pat Gallava and George Kelly have been giving for new home owners all over town.

Dad and Mom were over in the evening, and Dad was looking over my catalogs. He got to talking about all the various angles of gardening and telling of the interesting new developments in the control of insects and weeds. He told us of an intensely interesting book that told all about how plants grow, how they manufactured their food and why they died. He advised us to go to the Helen Fowler Library in Horticulture House and check out some of the books that interested us most and read them these long evenings. (I checked up and found that anyone can go to Horticulture House to study or read or ask questions but only members can take books home.) I must take out membership and then I'll get the Green Thumb every month, and maybe sometime, I'll have a little green tinge on my own thumb.

March 27. Today started out so nice that I was sure that the little roses and perennials that we covered up last fall must be ready to uncover. I called Dad Dendron and he reminded me that it sometimes snowed even up to the last of May. I'll have to be patient. He also told me that I had better get out the hose and water those things, especially those on the south side of the house. It seemed a little queer to me to be watering in March but he said that a plant needed watering any time that it was dry and the ground was not frozen.

Mother Dendron came over this morning and showed me how to fill shallow boxes (flats) with well prepared soil and get them ready to plant seeds in. We will try starting a few vegetables and flower seeds so as to get them to good size before it is safe to plant them out. Red said that we could buy them cheaper when it was time to plant but, somehow, it just makes me feel like a little part of Nature when I start my own seeds.

Dad was by in the afternoon and told me about the scale insects that he had seen on the neighbor's trees. He made it sound real interesting when he told of the marvelous life history that they have. The important thing he said is to make arrangements now with some reliable tree sprayer to have a dormant spray given them when the weather is suitable.

March 28. This is the first nice Sunday that we have had for many weeks so we are going to forget our own little garden for today and go to see if the mountains are still there. Red and I, his Mother and Dad and m



folks packed into the car with a lunch and hit for the high country.

We didn't get very far into the mountains, for we soon found that there was snow there yet, but we did find a nice warm nook in the foothills, out of the wind, and in the sun where we were very comfortable; and was much surprised to find several kinds of wildflowers in bloom. There was the bright yellow balls of the Oregon Grape, tiny purple flowers of the Storks bill and the greenish head of flowers that Mother called "Pepper and Salt." We saw some Pasque flower buds beginning to show considerable size and found several other green things that were not far enough along to identify. It was a wonderful day, with the promise of spring all around us but no ants or other "varmints" out yet. After seeing all this coming beauty around us we were more than ever resolved to make a little spot of beautiful plants in our own little garden that we could enjoy every day.

## EARLY PLANTING PAYS

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*Early Yellow Crocus. Photo by Mark Norton.*

## WINTER BLOOM IN OUR COLORADO GARDEN

By RUTH ASHTON NELSON

THERE is no month without bloom in our garden. The little, hardy Violas, "Johnny-Jump-Ups" are always with us. Their seeds fall into warm nooks and crannies and any

*Squills.*



time we look we find a few flowers. In December or January even two or three Violas in a tiny glass make quite a conversation piece at a tea party. Throughout last November and well into December a creeping hybrid Phlox, variety Camla, bloomed in the rock garden. This Phlox is a regular spring and summer bloomer.

About the middle of January the brilliant yellow winter Crocus began to appear—soon followed by a slender purple variety. These are in a narrow border of the terrace close to the southwest wall of the house. Trained against an opposite wall the winter Jasmine (*J. nudiflorum*) began opening its yellow stars. February 2nd saw the Snowdrop in bloom in the sheltered border mentioned above. Near these, on February 7th, a spe-



of brilliant blue advertised the first scilla. At the south corner of the rock garden the buttercup-like blossom of Winter Aconite appeared at the same time. Near a south wall, but shaded by a Pfitzer Juniper, the "Christmas Rose" (*Helleborus*) is sending up large flower buds during the first week in February.

Granted this has been a wonderfully open and warm winter — but

Coloradoans may always expect some of this fine weather in January and February. There are several varieties of plants which will respond to these warm spells if planted in sheltered nooks. All those mentioned above bloomed for us at about the same dates the preceding year. It's a real thrill to find these small, brilliant blooms on a January morning!



*Violas.*

## Mountain Peat Fertilizers

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Early spring is the time to add fertilizers to all garden soils and lawns. The frost is coming out, the plants are beginning to grow and nothing can give them such a good start as having a good hearty meal. The natural fertilizers, plus MOUNTAIN PEAT HUMUS provide this meal in its most acceptable form.



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# SOMETHING NEW UNDER THE SUN

By KATHLEEN MARRIAGE

IT seems that Colorado in early days got the reputation of being difficult for gardening, with the result that many gardeners fought shy of planting much except the well-known old timers: Spiraeas, Irises, Phloxes, etc.

It is worthwhile to have the courage to try out plants new to us. This is what the new Botanic Garden in Denver will do for all of us before many years.

"There is nothing new under the sun" but now and then there comes along something new at least to us. In the garden of my youth one of the spring flowers that bloomed with the earliest Tulips and continued until the last of the late ones was *Doronicum plantagineum*. When I tried to grow them in my Colorado garden many years ago they sulked for a year or two and then died. Once again I planted them in my new garden of better soil, varying from sandy loam to clay. In went the *Doroni-*

cums to be tried in each variety of soil and each exposure from hot sunshine facing south to long winter in a north bed. They responded heartily and all producing big well formed yellow daisies on two-foot stems, attractive in the garden and good cut flowers lasting a week or longer.

Massed behind yellow Darwin Tulips they are effective and tend to reduce that smug self-sufficient look some Tulips wear. *Doronicums* seem to be still new—or newish. Try some in a kind soil with a generous helping of peatmoss.

Another plant worthy but little known hereabouts is *Jasminum nudiflorum*, vilified by a non-hardy reputation when all she wants is protection from our day-after-day winter sunshine. In my youth I knew it as a creeper sternly disciplined and trained flat against a stucco wall in swirling patterns. It may be grown as a shrub—a straggling one. Its gre

*Doronicum plantagineum*. Photo by Author.





value is in its early flowers. Long before the first Forsythia dares to show its nose this Jasmine is giving us its garlands of yellow flowers on naked stems, usually in January. The catch in growing it as a shrub is that its untidy habit of growth invites severe pruning which murders the flowers; it blooms on wood two years and older. I have grown it on a south wall where it flowered grudgingly, with most of its stems cooked to a light brown, while another plant is really happy on a west wall where it retains its vivid green stems and blooms generously. Perhaps I should confess that on this west wall the winter sun comes strained through bare maple branches and a few overgrown tops of a *Juniper pfitzeriana*.

In the north, roses are best pruned in the early spring when wood that may not have survived the winter can be pruned off, says the American Association of Nurserymen.

## THIS IS RIGHT

By E. J. SINNAMON  
Swingle Tree Surgery Co.

There is lasting satisfaction when we select the right plant for the right place. The illustrated splendid specimen of *Juniperus sabina tamariscifolia*, Tamarix juniper, at the home of Mr. and Mrs. E. H. Rights, 2333 Locust Street, is a good example of this principle.

This evergreen was planted many years ago and instead of becoming overcrowded and misshapen, it has continued to expand in beauty and create a striking year round centerpiece for the entrance of their home.

The plant requires very little in the way of maintenance, mainly a pre-growth spray in the spring to control red spider and an occasional clipping to keep it uniform.

## NEW MEMBERSHIPS

Jan. and Feb., 1954

- Mr. Charles J. Pinto, 1422 Magnolia St., Denver, Colo.  
 Ruth E. Dodge, 4490 Yarrow, Wheat Ridge, Colo.  
 Mr. Glenn A. Wells, 2410 S. Lincoln, Denver, Colo.  
 Mrs. Carl Higby, Box 211, Littleton, Colo.  
 Mrs. Glenn Jorgensen, Stockyards Station, Denver, Colo.  
 Mrs. R. D. Loudon, Branson, Colo.  
 Mr. Ralph M. Boggs, 3712 Raleigh, Denver, Colo.  
 Mrs. H. G. Jordan, 428 W. Laurel St., Ft. Collins, Colo.  
 Mr. Harold Beier, 245 S. Williams, Denver, Colo.  
 Mr. Russel Pilch, 3602 Alcott St., Denver, Colo.  
 Mr. Kenneth Pigford, 2862 North Ave., Grand Junction, Colo.  
 Ira S. Hickman, Box 35, Bushnell, Nebr.  
 Mr. W. H. Dexter, 755 Salem, Denver, Colo.  
 Mrs. C. Cullor, Platteville, Colo.  
 Mrs. Paul A. Timm, Jr., 1010 Oakland St., Carbondale, Ill.  
 Fern A. Shannon, 1170 Logan, Denver, Colo.  
 Mr. H. W. Gillett, 185 So. Ammons, Denver 15, Colo.  
 Mr. Lewis D. Hammer, 1801 So. Raleigh, Denver 19, Colo.  
 Mr. Fred S. & B. Taylor, 390 So. Cody St., Denver 14, Colo.  
 Miss Mary Tucker, 1832 No. Franklin, Colorado Springs, Colo.







*Attractive view from window of the Burnham Hoyt Home.*

## USEFULNESS AND GARDENS

By SAM L. HUDDLESTON

Landscape Architect

ONE of the values of a garden is the enjoyment to be had from looking into it from the windows of the home. But its greatest value is when it is so attractive that one cannot resist its invitation to come out of doors and enjoy it on sunny days. This is particularly true in Colorado because our climate permits many months of enjoyment without discomfort from inclement weather.

A garden, to offer an invitation to come out and enjoy, must have the element of usefulness built in. It should not appear to be something that is just to be looked at. It is essential that the useful garden be closely linked to the house. It cannot be far distant, or tied to the house

in an ill defined manner. In a formal plan the lines of the house, for instance the end walls, can be extended into lines of the garden in the form of clipped hedges. A connection can be immediately established by this means since the garden becomes an extension of the same size as the house much as if one built on a porch the length of the house. In informal designs, some inviting steps, a porch or other method of connection between an entrance to the house and the garden is necessary if the garden is to be inviting. If it is not possible to connect the garden directly to the house through a doorway then a view from a window of a feature related architecturally to the house may



used to give the effect of a close relationship.

An excellent way by which the garden can be closely linked to the house is by the use of a terrace or patio. Well designed patios, as extensions of the floor of the house, result in a very close relationship between house and garden, forming an outdoor living area which is architectural in effect but still a part of the garden. From it the garden may be seen to advantage and some small amount of planting along the border of the patio or even in it, if it is large enough, may be made a feature of the scheme. Bright awnings, umbrellas or garden furniture in harmony with the house will provide accent and perhaps make a distinctive color point in the garden.

A well located garden feature is an invitation to walk to it and so to move about and make use of the garden, much as one will move about in an interesting and pleasant room. Such a feature encourages a person within the house to step outside and go to the particular point of interest.

Comfortable garden furniture and accessories well placed in the design presents one of the strongest invitations to make use of the garden. Even though one who yields to this invita-

tion may not actually find the furniture useful, still its function as an attraction is important.

Easy paths, bordered by flower beds, stone or brick steps, a fence or wall, any feature worked into the design which will suggest use of the garden by people helps to make it useful. An air of seclusion and privacy, sometimes hard to get without confining the garden too much is very necessary in attaining the desired effect.

The basic design determines what elements shall be employed to secure the useful garden scheme. Misplaced architectural elements, wrongly located furniture or any of the other features located at random and without careful thought will not produce usefulness, only disorder. Basic design plus these features will. If you will make your garden inviting and useful, then start to do so with its very first step in design.

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The best advice anyone can give a beginning gardener, says the American Association of Nurseryman, is to purchase the best quality of plants, then plant and maintain them carefully as advised by a local nurseryman.

*Useful little gardens in Colorado Springs and Boulder.*

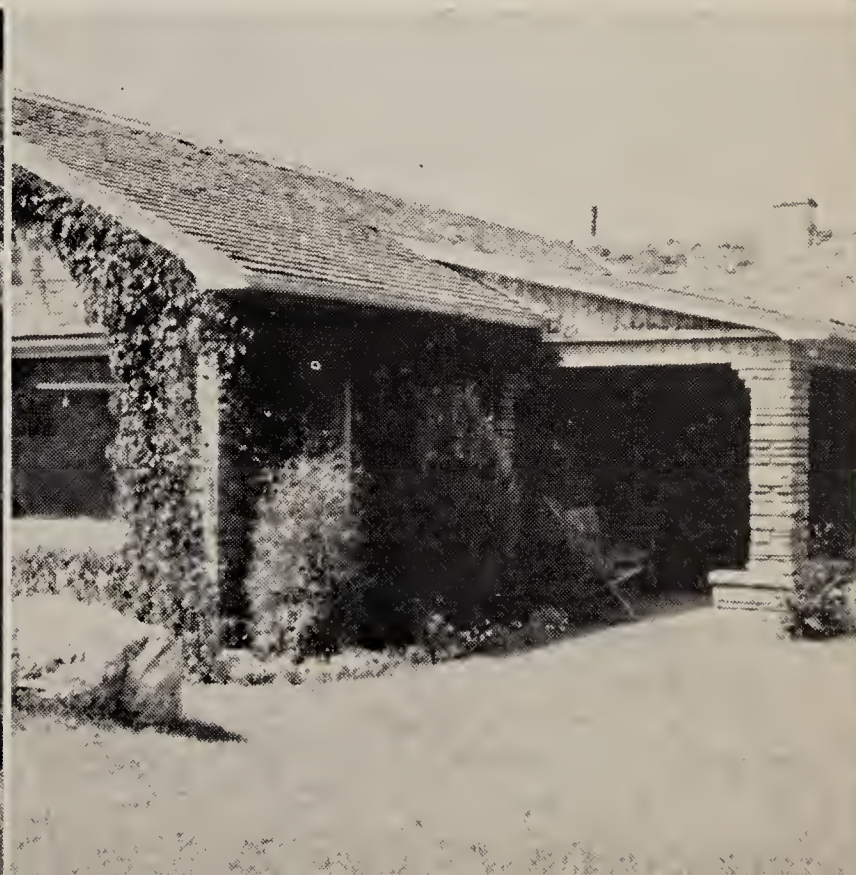




Chart Showing  
Use and  
Characteristics  
of Some of the  
Most Popular  
Trees Planted  
in Colorado

Arranged by  
Patrick J. Gallavan,  
Asst. Denver City Forester.

Name of Tree	Height	Habit	Transplant	Subject
Silver (Soft) Maple (Acer saccharinum)	50-70'	spreading round	readily	yes
Norway Maple (Acer platanoides)	40-60'	compact round	difficult	yes
Schwedler Maple (Acer plat. var. schwedleri)		Same characteristics	as above	
Ohio Buckeye (Aesculus glabra)	30-40'	round	difficult	no
Horse Chestnut (Aesculus hippocastium)	40-50'	compact round	difficult	no
Tree of Heaven (Ailanthus altissima)	30-40'	open round	readily	no
Weeping Birch (Betula pendula)	30-40'	weeping pyramidal	readily if timed right	no
Catalpa (Catalpa speciosa)	40-60'	open pyramidal	readily	yes
Hackberry (Celtis occidentalis)	50-60'	spreading round	difficult	no
Downy Hawthorn (Crataegus mollis)	20-30'	compact oval	difficult	no
Washington Hawthorn (Crataegus phaenopyrum)	20-30'	compact	difficult	yes
Russian Olive (Elaeagnus angustifolia)	20-30'	open spreading	readily	no
Green Ash (Fraxinus pennsylvanica)	40-60'	compact round	readily	yes
Honey Locust (Gleditsia triacanthos)	40-60'	open round	readily	yes
Moraine Locust (G. Triacanthos var. inermis)		Same characteristics	as above	
Kentucky Coffee-tree (Gymnocladus dioica)	40-50'	open	difficult	no
Black Walnut (Juglans nigra)	40-50'	rounded to upright	difficult	yes
Golden Rain Tree (Koelreuteria paniculata)	20-30'	vase	readily	yes
Flowering Crab (Mallus sp.)	15-30'	varied	readily	yes
Cottonwood (Populus sargentii)	50-80'	open spreading	readily	no
Red Oak (Quercus borealis)	40-60'	spreading round	readily to difficult	yes
Burr Oak (Quercus macrocarpa)	40-70'	pyramidal	difficult	yes
Weeping Willow (Salix babylonica)	50-70'	round weeping	readily	no
Mountain Ash (Sorbus aucuparia)	20-30'	open spreading	readily	yes
American Linden (Tilia americana)	40-60'	upright spreading	readily	yes
Little-leaf Linden (Tilia cordata)	30-50'	compact pyramidal	readily	yes
American Elm (Ulmus americana)	50-70'	spreading vase	readily	no
Chinese Elm (Ulmus pumila)	40-60'	compact round	readily	no



Leakage	Growth Resistance	Disease Resistance	Insect Pests	Roots	Flowers	Fall Color	General Success	Comments
fair	few	shallow	inconspicuous	yellow	good	Not too desirable for small home sites. Subject to serious heart rot.		
good	few	deep	inconspicuous	orange yellow	fair	Desirable tree. Should be used more.		
						Desirable because of its red leaf color during spring.		
fair	few	deep	greenish-yellow clusters	orange	fair	Hardy, but only few used here.		
fair	few	very deep	showy white in long spikes.	none yellow	fair	Hardy, but only few used here.		
good	none	deep	sm. yellow in clusters.	none	good	Adaptable to very adverse growing conditions.		
fair	few	shallow	inconspicuous	yellow	good	Beautiful specimen tree even during winter season.		
good	few	deep	showy white in long panicles	none	good	Very beautiful in bloom, however drops faded blooms and bean pods.		
good	few	deep	inconspicuous	yellow	fair	Once established will withstand very adverse conditions.		
good	few	deep	showy white	red fruits	good	Small attractive tree, good for year round ornamental use.		
good	few	deep	showy white	scarlet	good	Small persistent red fruit give nice winter effect.		
good	few	shallow	small but fragrant	silver	good	Good tree for foliage contrast.		
good	few	deep	inconspicuous	yellow	good	Somewhat messy because of its prolific seeding habit.		
good	few	deep	inconspicuous	golden	good	Grows well under most soil conditions. Good lawn tree.		
seedless and thornless.						New in this area. Has good possibilities.		
good	few	deep	inconspicuous	none	fair	Grotesque form of growth give interesting winter character.		
good	few	very deep	inconspicuous	none	fair	Not considered a specimen type tree.		
good	few	deep	small yellow in upright spikes	none	fair	Very picturesque small tree, but hard to establish.		
good	few	shallow	very showy white to red	none	good	Many varieties available. Very good for ornamental use.		
fair	few	shallow	inconspicuous	yellow	good	Massive tree at maturity. Should not be considered for small home sites.		
fair	few	deep	inconspicuous	scarlet	good	The best oak for this area.		
fair	few	deep	inconspicuous	none	fair	Tolerates alkaline soils. Should be used more.		
poor	many	shallow	inconspicuous	yellow	good	Large tree, requires more space than found in average home site.		
poor	few	shallow	showy white clusters	reddish	good	Showy flowers and persistent fruit, good for ornamental use.		
good	few	deep	small but fragrant	yellow	good	Good shape. A clean tree.		
good	few	deep	small but fragrant	yellow	good	Excellent small tree, has good possibilities.		
fair	many	deep	inconspicuous	yellow	good	Despite its many drawbacks, still a reliable tree.		
fair	few	shallow	inconspicuous	yellow	good	Very rank and weak growth under irrigation. Not a good city tree.		



## SHOULD PEOPLE LIKE TREES?

By CARL SCHULHOFF

**O**CCASIONALLY we find a person in Denver who has an aversion to trees. Probably a large cottonwood has caused considerable trouble; roller-coaster sidewalks, tree roots in the lawn, tree roots in the sewer lines, and literally hundreds of thousands of leaves to rake up in the fall, not to mention extensive pruning to prevent roof damage from over affectionate limbs. When their patience is exhausted, the offending tree is removed at considerable expense. In a case of this kind the property owner has a long suffering expression, as he asks if the trials and tribulations

*Our native cottonwoods are grand trees when growing where they belong—with plenty of room.*



of a tree owner are not much greater than the benefits to be derived thereof? If the summer shade, insulating value and temperature control are not excessively expensive?

On another occasion you happen into a person who has an over-large maple, say 70 feet high, who would like to find an experienced arborist who would make the tree about half its present height, around 40 feet. "The tree is far too valuable as a shade for the children to play under, to consider its removal." This party loves trees very well but not so wisely.

Between 1904 and 1912, Mayor Speer gave away American Elm and Soft Maple to anyone who promised to plant them. At that time and under the circumstances, he did a prudent and farsighted act of benevolence to the residents of Denver. The heat of many a hot summer day is made more tolerable because of his foresight. But there comes a time when growing plant material must be reevaluated. Every five or ten years the trees, shrubs and evergreens under our management, whether we be a private property owner, a parks executive or a forest ranger, require checking. The city forester is concerned over the spacing and location of trees, planted fifty or more years ago.

The type of person we like to meet is the one who loves to grow things but who restrains his love with a little prudence, or at least is willing to remove crowded or overgrown material. Fifty percent shade on your lawn and garden is much more desirable than either one hundred percent shade or no shade at all.

A Cottonwood, Pasquale Marranzino to the contrary, is fine on a ranch or farm or even a city park. But a



tree with a 40-foot branch spread or 10-foot diameter shades 6400 square feet of lawn and garden. This is several feet over the shade desirable on a 2 or 3 lot piece of city property.

My guess is, that a tree-loving person, who tempered his love with moderation, would endeavor to grow the finer type of plant material, finer in a quality and quantity sense. The Norway Maple is a beautiful tree—practically self shaping; exceptionally clean; has reddish leaves in the spring turning to purplish green in mid-summer and frequently finishing up yellow in the fall. I wish I had the ability to describe some of the other fine hardwood trees in a manner worthy of their beauty. In the spring a Schwedler Maple adds a touch of color to a landscape, just as striking as the bloom of a flower.

We should take up Mayor Speer's splendid idea and effort where he left off and give Denver the reputation of having the finest trees of any city in the country; just as it has a fine reputation for lawns.

It is possible to strike a balance between trees and lawn in such a manner that the trees give just sufficient shade to make the lawn require less frequent watering. The cool graceful pattern of the shadow of a small tree on fresh-mown lettuce crisp grass is appealing to the home owners as well as the grass roots. It is also cooling to the paint on the house and the muscles and nerves of those within.

In botany class they used to tell us that trees took in carbon dioxide and gave off oxygen, to compensate for the reverse process in animal life. The air is cleaner and fresher where trees abound. So for your own sake and the sake of your progeny don't spend all your insulating dollars on the house. A well placed, carefully chosen, properly maintained tree will give you more temperature control,

and give greater intrinsic value to your residence. And it will give greater peace and quiet through the diminishing of dust and noise from the street.



*Home of Maurice Marshall planted with appropriate "in scale" material.*

Trees generally should not be planted directly in front of and close to the house, but should be planted to accent the building and shade its west walls from the rays of the sun during the hottest part of the day, says the American Association of Nurserymen. In cold climates deciduous trees will shed their leaves to let in the winter sun. Coniferous evergreens should be planted elsewhere on the property to provide attractive green growth in the winter months, an evergreen hedge being particularly desirable.

In selecting shrubs, foliage is as important as the bloom, since the foliage is with us a greater part of the year, while the blooming period may be relatively short, says the American Association of Nurserymen.



## DENVER LINDENS

By GEORGE S. STADLER  
City Forester

**L**INDEN is the common name of a genus of graceful shade trees, also known as "lime tree," "linn" and "basswood." The linden genus is recognized botanically as *Tilia*.

The most common member of this group found in Denver is the American Linden (*Tilia americana*). The older specimens here form a compact symmetrical growth if kept free of adjacent competitive trees. There are a few found in our parks with a trunk diameter of 18" to 20", reaching to an overall height of sixty to seventy feet. The leaves are simple, alternate and heart shaped, having a smooth dark green upper surface with a paler green underside. Clusters of small five-petaled creamy white flowers of delicate aroma appear after the leaves are fully developed in early summer. Woody fruits about the size of a pea are thence formed, suspended from a stem attached midway to a leafy bract. The best shaped and most vigorous are usually found growing in open lawn areas where minimums of pruning have been applied

and the tender bark at the base the tree has been kept free of lawnmower bruises. Foliage is generally dense, completely screening limb and branch structure. Fall coloring is golden yellow, with shedding of leaves early in the fall.

Another linden common to the Denver area, although planting stock is now extremely difficult to obtain is the Little Leaf Linden (*Tilia cordata*). This is a most desirable and attractive tree. The leaves of this tree are generally smaller and somewhat rounder, having a broader, more spreading form with distinctly less height development—usually of less than 35 feet. It grows somewhat slower than its larger relative, the American Linden, but properly cared for effects a specimen tree highly valued by Denver property owners.

These two lindens are not necessarily difficult to transplant, but definitely require extreme protection, care and shading of their trunks for at least two and sometimes three years after transplanting. Open, unprotected sites in newly established subdivisions are generally poor locations to gamble on survival of new planting of linden. Their woody structure, though soft and somewhat subject to decay, is reasonably storm resistant if properly cared for. It is not a "messy" tree or one that requires extreme pruning care to maintain, and follows a typical characteristic of normal form development. Root systems are well developed, and do not interfere with lawn growth, nor are they inclined to develop "sucker" shoots. The lindens prefer rich well drained, loamy soils, but are often found growing in heavier soils as long as logical drainage is provided.





ded. Although requiring protection or establishment, they do best where competition of adjacent trees does not rob their roots or distort their form.

Insect pests attack these trees the same as any other, and timely control measures may become necessary, however, to date, no uncontrollable situation has occurred to menace their growth in this area.

Without doubt these are extremely desirable trees when properly located and cared for—ask any one who has one growing in his yard.

## SELECT PLANTS FOR 12-MONTHS BEAUTY

From Planting News,  
America Association of Nurserymen

Trees and shrubs have many qualities that the home owner sometimes ignores when planting the home property.

Although all trees and shrubs are interesting all year, some are more so than others at different seasons. Some of the qualities to look for in plants that will help to provide beauty during the whole year are, according to the American Association of Nurserymen, as follows:

1. Beautiful blooms: there are many exciting blooms in the flower world. This often is the sole reason for purchasing certain plants. Shrubs include such plants as roses, spirea and forsythia; trees such as flowering crabapples, flowering plums and Hawthorns.

2. Fragrant flowers: the perfume of some flowers is outstanding. Included are roses, lilacs, certain viburnums, weigela and numerous others.

3. Interesting bark; color runs from white to gray to red. There are such trees and shrubs as white birch; dogwood (grey), certain varieties of maple, dogwood or roses

(red); or certain willows (yellow), and numerous others. Coniferous evergreen bark often is very attractive.

4. Colorful fruits: all edible fruits are attractive, including the whole group of crabapples. There also are many striking berried shrubs and trees, such as pyracantha, dogwood, snowberries, hawthorns and euonymus.

Your local nurseryman can advise on various shrubs and trees that will have several of these characteristics that make them interesting for more than one season.



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# THE BEST SHRUB FOR EVERY SITUATION

By GEORGE W. KELLY

**T**O help everyone select the appropriate shrub for every purpose we have taken a typical new, small home and shown you by pictures how this place has used appropriate shrubs then we have given lists of other shrubs which might be used under similar circumstances but for slightly different effects. This will allow every one to select just the size, character, color of bloom and other characteristics that will be suitable for the effects wanted and the individual preferences.

We appreciate the cooperation Mr. and Mrs. William Vogt, of 30 South Colorado Boulevard, for allowing us to use their home as an example which may help many others. This place is outstanding among others of the same size and age because it was first carefully planned by Mr. Vogt, then the soil well prepared and each plant selected with care to its particular place.

1. Shrubs for a Tall, Informal Screen (6 to 8 feet).

Some of the tall shrubs actually used here were Persian Lilac, Tartarian Honeysuckle, Nanking Cherry, Redtwig Dogwood and several Viburnums. Shrubs that might have been used would include the following:

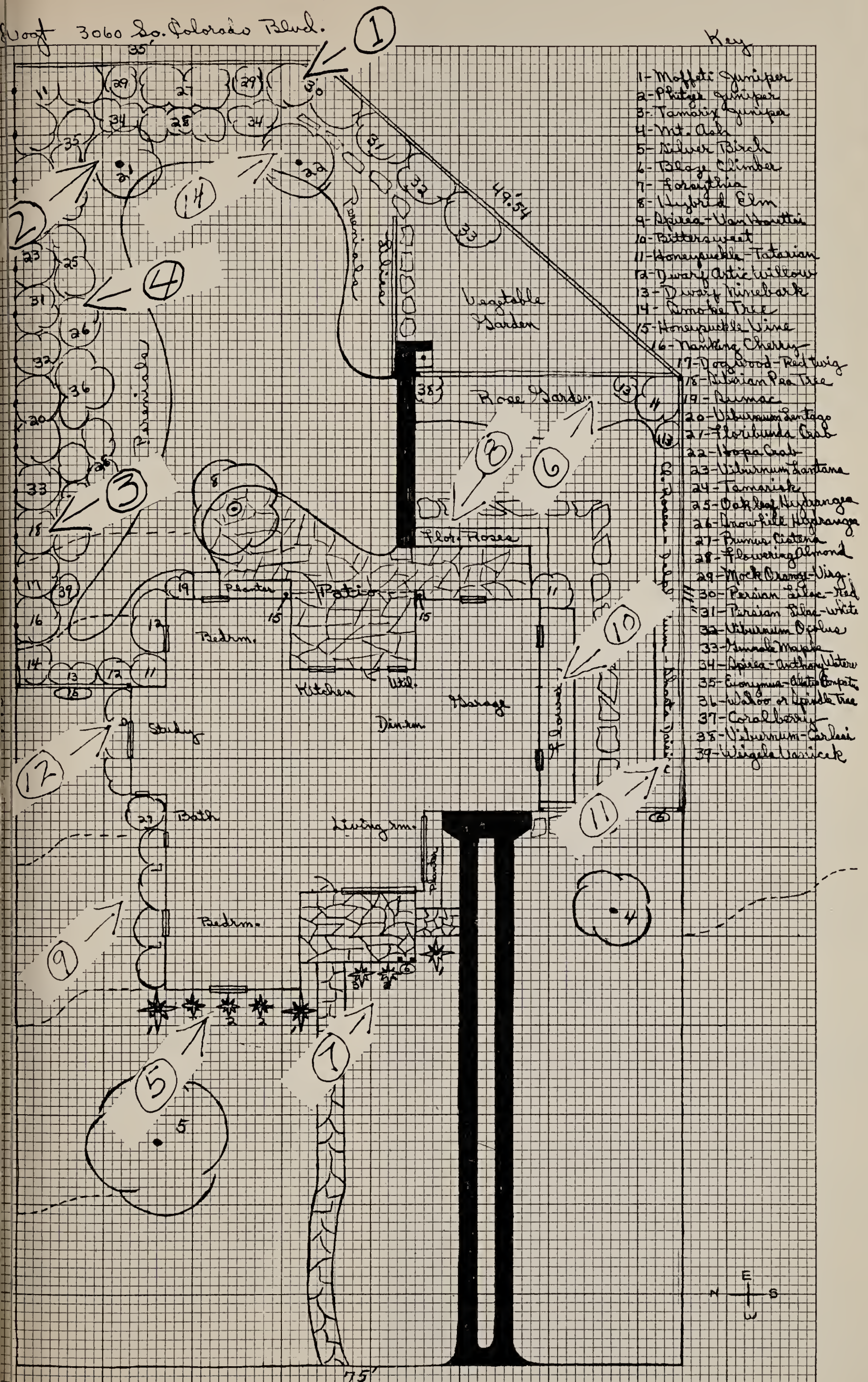
Gray Dogwood	Redtwig Dogwood
Privet	Beautybush
Euonymus	Mock Oranges
Serviceberry	Buckthorn
Redleaf Rose	Common Lilac
Manchu Cherry	Chokecherry
Hoptree	Sumacs
Nannyberry	Arrowwood

*Cuts to left, from top to bottom referring to situations Nos. 1, 2 and 3.*



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Key







Shrub Willows	Native Mountainas
Bush Honeysuckles	Siberian Peashrub
Redleaf Plum	Ninebark
Flowering Plum	Late Lilac
Highbush Cranberry	Tamarix
Snowball	Hawthorns

2. Tall Shrubs to use as Specime or in prominent places.

The shrub pictured is a Pussy W low and others might include:

Ginnala Maple	Washington
Wahoo (Euonymus)	Hawthorn
Wayfaringtree	Flowering Plum
(Viburnum)	Rose-acacia
Thimbleberry	Hardy Buddleia
Pauls Scarlet	Tree Lilac
Hawthorn	Redleaf Rose
French Hybrid Lilacs	

3. Tall plants suitable to make clipped hedge 6 to 8 feet high.

Here were used Tamarix, Siber Peashrub and Mock Orange. Not tually clipped as yet in this pictu but they might have been, and following might also be used:

Russianolive	Chinese Elm
Bush Honeysuckle	Buckthorn
Persian Lilac	Siberian Peashrub
Hawthorns	Privet
Oneseed Juniper	Pfitzer Juniper

4. Medium Height Shrubs (3 to feet) used as an informal border.

Below is a list of shrubs that wo do well in such a place:

Redtwig Dogwood	Mugho Pine
Shrub Roses	Cotoneaster
Thimbleberry	Spirea arguta
Korean Spirea	Gooseberries
Alpine Currant	Dwarf Ninebark
Flowering Almond	Spirea Vanhouttei
Flowering Quince	Lemoine Mock
Golden Currant	Orange
Sorbaria	Pfitzer Juniper
Rock Spirea	

5. Medium height shrubs for pro inent places or specimens.

Actually here Pfitzer Junipers w used to give a year 'round eff Shrubs that might have been u include:

Winged Euonymus	Forsythia
Austrian Copper	Korean Spirea
Rose	Redleaf Rose
Lilac Honeysuckle	Apache Plumes
Korean Barberry	Thimbleberry
Hybrid Mock Orange	

*Cuts on left, from top to bottom, refer to situations 4, 5 and 6.*



6. Medium height shrubs to be clipped for a hedge.

In the picture a wooden fence has been used to screen the compost pile from the rose garden. A hedge of the following material clipped 3 to 4 feet high would be also effective:

- |                |                 |
|----------------|-----------------|
| Privet         | Lemoine Mock    |
| Hydrangea      | Orange          |
| Alpine Currant | Columnberry     |
| Spirea         | Pfitzer Juniper |
| Dwarf Ninebark |                 |

7. Shrubs for a low, Informal boundary (under 3 feet).

For this effect as a border to the front terrace Tamarix Leaf Juniper have been used. One of the following might have been used in this or similar locations with good effect:

- |                  |                     |
|------------------|---------------------|
| Cherry           | Leadplant           |
| Lemoine Mock     | Russian Almond      |
| Orange           | Japanese Barberry   |
| Alpine Currant   | Bush Cinquefoil     |
| Dwarf Peashrub   | Wild Roses          |
| Coralberry       | Wild Gooseberry     |
| Shrub Spirea     | Snowberry           |
| Redleaf Barberry | Tamarixleaf Juniper |
| Floribunda roses |                     |

8. Low, Formally Clipped Hedge.

Here Floribunda roses have been used, but one of the following might be effective under similar situations:

- |                |                   |
|----------------|-------------------|
| Dense Privet   | Dwarf Ninebark    |
| Columnberry    | Spirea arguta     |
| Lemoine Mock   | Dwarf Peashrub    |
| Orange         | Japanese Barberry |
| Alpine Currant |                   |

9. Shrubs for Shady Places.

Here Forsythias have been used effectively. Other shrubs that might have been used include:

- |                   |                   |
|-------------------|-------------------|
| Forsythia         | Euonymus          |
| Hydrangea         | Viburnum dentatum |
| Viburnum carlesii | Hydrangea         |
| Dois de la Reine  | Currants          |
| Privet            | Dogwood           |
| Snowberry         | Coralberry        |
| Hebe              | Mock Orange       |

Notes on right referring to situations 7, 8 and 9.

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10. Shrubs for Hot, Dry or Alkaline Places (such as south of a house or on the plains).

The picture shows annuals and perennials being used until suitable shrubs can be found. Below are some things that might have been used:

Sumac	Bush Honeysuckles
Buckthorn	Tamarix
Wild Plum	False Indigo
Chokecherry	Privet
Elderberry	Siberian Peashrub
Lilacs	Snowball
Buffaloberry	Flowering Quince
Cotoneaster	Rock Spirea
Matrimony Vine	Oldman Wormwood
Flowering Quince	Shrub Roses
Althea	Snowberry
Forsythia	Yucca
Leadplant	Coralberry
Japanese Barberry	Bush Cinquefoil

11. Vines for a fence or trellis in the sun (twining or needing support).

Here are shown climbing roses. Other suitable things would include:

Climbing Roses	Clematis
Silverlace Vine	Honeysuckles
Wild Grape	Trumpet vine
Bittersweet	Wisteria
Engelmann Ivy	Hopvine

12. Vines to cling to a wall facing the north. (Not illustrated.)

English Ivy	Boston Ivy
Euonymus	

13. Shrubs to use in the Mountains, at altitudes of 6,000 to 9,000 feet. (Not illustrated.)

#### TALL

Chokecherry	Bush Honeysuckle
Lilacs	Highbush Cranberry
Hawthorns	Shrub Willows
Serviceberry	Siberian Peashrub
Nannyberry	Redtwig Dogwood

#### MEDIUM

Korean Spirea	Shrub Roses
Wax Currant	Golden Currant
Thimbleberry	Rock Spirea

#### LOW

Gooseberries	Bush Cinquefoil
Snowberries	Sandcherry
Low Ninebark	Alpine Currant

Cuts on left referring to situations 10 and 14.



14. Ornamental Plants which also furnish edible fruit for human use. Used here is Crabapple. Other plants might include:

- |              |                |
|--------------|----------------|
| Crabapples   | Gooseberries   |
| Thimbleberry | Chokecherry    |
| Currants     | Plums          |
| Grapes       | Buffaloberry   |
| Huckleberry  | Nanking Cherry |
| Elderberry   | Sandcherry     |

15. Shrubs having fruits to attract birds and add color in Fall. All the above and the following:

- |               |               |
|---------------|---------------|
| Huckleberry   | Roses         |
| Amelanchier   | Pincherry     |
| Junipers      | Engelmann Ivy |
| Sumacs        | Mountainash   |
| Botanischer   | Viburnums     |
| Oneysuckles   | Dogwood       |
| Russianolive  | Hackberry     |
| Blackthorn    | Privet        |
| Prunella      | Hawthorns     |
| Heracles Club | Snowberries   |

16. Shrubs to give Fall Color:

Sumacs	Ginnala Marle
Huckleberry	Engelmann Ivy
Botanischer	Shrub Roses
Amelanchier	Viburnums

17. Shrubs for color of bloom:

- |                  |                   |              |
|------------------|-------------------|--------------|
| Yellow           |                   |              |
| Hamamelis        | Flowering Currant |              |
| Amelanchier      | Bush Cinquefoil   |              |
| Shrub Roses      |                   |              |
| Pink and Red     |                   |              |
| Flowering Almond | Flowering Quince  |              |
| Nanking Cherry   | Apples            |              |
| Sumacs           | Roses             |              |
| Oneysuckles      | Rose-acacia       |              |
| Beautybush       | Althea            |              |
| White            |                   |              |
| Amelanchier      | Sorbaria          | Mountainash  |
| Huckleberries    | Snowball          | Privet       |
| Viburnums        | Plums             | Thimbleberry |
| Black Orange     | Ninebark          | Elderberry   |

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## THE DIFFERENCE BETWEEN ANNUALS AND PERENNIALS

By MRS. ROSE TUGGLE

**T**HOSE who study horticulture know the difference between annuals, perennials and biennials, however, to clear up this matter some more and answer questions about what or why is it an annual I will try to explain a few facts regarding this subject.

*Perennial Poppies now may be had in a variety of colors.*



A great many plants are considered annuals because they are not hardy enough to live through the winter, so complete the life cycle of growing and blooming and producing seed in one season.

Results of experiments in the United States Department of Agriculture show the following:

There are plants which will grow but not bloom because the days are either not long enough, or too long, and other times the days are just long or short enough for them to bloom, but do not grow. This sound is rather complicated but will clear it up as we go on. The daylight hours have much to do with the blooming or not blooming of plants. They will bloom where the number of daylight hours are just right. For instance, the poinsettia, chrysanthemum or cosmos must have short daylight hours. Plants like iris, peony and others must have long daylight hours. Each



plant seems to require a different length of time in which to grow and to produce flowers and seed. Long days are needed for leaf growth, short days for blooming and seed production. Poinsettias and chrysanthemum should be protected from long daylight hours in order to bloom.

Perennials need a long period of growing and daylight before they will flower, so it takes two years before they bloom. Biennials also need many daylight hours before the conditions are just right for them to bloom.

This explains why some plants bloom when they are either very short or very tall or not at all.

So we find that the heights and blooming period of a plant is often determined by the varying length of daylight.

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## COMMUNITY GARDEN CLASSES IN MARCH

As previously announced there will be a series of community garden Classes in the outlying areas of Greater Denver during March. These will be conducted by Herbert Gundell, Denver County Agent, George W. Kelly, Horticulturist for the Colorado Forestry and Horticulture Assn., and Patrick J. Gallavan, Denver Assistant City Forester.

All are invited. This is a wonderful opportunity for home owners new and old to learn the essentials of garden practice and the use of suitable plants in this area. The schedule of times and places follows:

Tuesdays, March 2, 9, 16, 23, at Garden Home Grange, 1120 So. Irving St.

Wednesdays, March 3, 10, 17, 24, at University Park School, E. Iliff Ave. and So. St. Paul St.

Thursdays, March 4, 11, 18, 25, in Hoffman Heights, Vaughn St. School, E. 13th Ave., and Vaughn St., Aurora.

Fridays, March 5, 12, 19, 26; Wheatridge Grange; on W. 38th Ave., next to Wheatridge High School.

One of the problems of nurserymen in recent years has been the prompt filling of orders in the concentrated spring sales season. Early ordering by home owners not only will help solve this problem to considerable degree, the Association says, but the early purchaser will have a better selection from which to choose.

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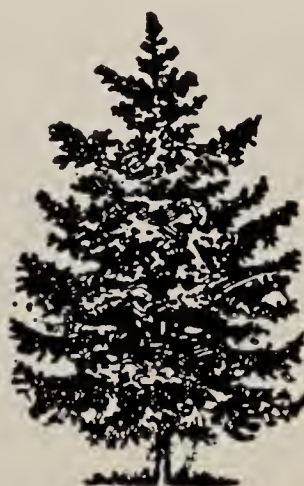
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*People go to the wilderness areas for the good of their souls.*



## WE NEED WILDERNESS

By SIGURD OLSON

*Wilderness to the people of America is a spiritual necessity, an antidote to the high pressure of modern life, a means of regaining serenity and equilibrium.*

I HAVE found that people go to the wilderness for many things, but the most important of these is perspective. They may think they go for fishing or the scenery or companionship, but in reality it is something deeper. They go to the wilderness for the good of their souls. I sometimes feel as though they had gone to another planet from which they can watch with cool detachment the fierce and sometimes meaningless currying of their kind. Then when the old philosophy of earth-oneness returns to them, they realize that once again they are in tune with sun and stars and all natural things, and with that knowledge comes happiness and contentment.

I believe this need of wilderness is inherent in most of us, even those seemingly farthest removed from it by civilized living. The cities may cover it up, make us forget temporarily; but deep underneath is an inherent urge for naturalness.

City life is artificial. Because artificiality leads to a sense of unreality and frustration, unhappiness often results. That is the price a people pays for high technological success, and that is the reason an intelligent, thinking people knows that unless it can break away and renew its contact with a slow-moving natural philosophy, it will lose its perspective and forget simplicity and wholesomeness.

In recognition of this now almost general need of our people, the National Park Service, the U. S. Forest Service, and the various states have wisely set aside many areas that may be classed as wilderness—areas dedicated to the spiritual welfare of all.

Yet we see commercial interests constantly at work, backed by powerful lobbies—interests calling for the cutting of the last stands of virgin timber, the exploitation of the last untouched reserves of the continent. They make the preservation of wild country a battle, and place the comparatively small reservations we have, in constant jeopardy. This element in our population makes necessary the utmost vigilance on the part of government agencies in charge of our parks and forests, as well as on the part of those organizations that understand what is at stake. The reservations already created are woefully inadequate to meet the need and give to the people of all parts of the United States the opportunity of wilderness recreation. This is especially true in the large centers of population; yet it is here that the need is greatest and opposition strongest.

We know now just how valuable these fragments of the old America have become to us as a people. We see them in a new light and realize that in addition to being museum pieces of the past, they are vital to our happiness, and they are investments in national character.

To give the people of this country an opportunity to renew their old associations as a race, to find themselves and their real qualities, to rejuvenate their spirits through simple living in the out-of-doors, is the real purpose of the preservation of wilderness.

Reprinted from *Exploring Our National Parks and Monuments*, by Devereux Butcher. Published by the National Parks Association, Washington, D. C.







April, 1954

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# *The Green Thumb*

COLORADO'S GARDEN MAGAZINE



GROWING ROSES FOR FUN



# Roses



*Quote from Sappho:*

“Would Jove appoint some flower to reign  
In matchless beauty on the plain,  
The Rose, mankind will all agree  
The Rose, the Queen of Flowers should be.  
The pride of plants, the grace of flowers,  
The blush of maids, the eyes of flowers;  
Its beauties charm the gods above;  
Its fragrance is the breath of love  
Its foliage wantons in the air,  
Luxuriant like the flowing hair;  
It shines in blooming splendor gay,  
While zephyrs on its bosom play.”

*Quote from Beaumont and Fletcher:*

“Of all flowers,  
Methinks a Rose is best;  
It is the very emblem of a maid;  
For when the west wind courts her gently,  
How modestly she blows, and paints the sun  
With her chaste blushes! When the north  
wind comes near her,  
Rude, and impatient, then, like chastity,  
She locks her beauties in her bud again,  
And leaves him to base briers.”







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# The Green Thumb

Vol. 11

APRIL, 1954

No. 4

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APRIL SCHEDULE

- April 4, Sunday. Trip to Window Ledge from Squaw Pass.
- April 8, Thursday. Regular Meeting of Denver Rose Society at the City Hall, 8 P.M.
- April 11, Sunday. Trip to Brook Forest.
- May 1 to May 5. Natural Bridges and Monument Valley. Camp out trip.
- May 9, Sunday. Early wildflower trip to Boulder. Mr. Pesman leader.
- May 25, Sunday. Circle trip to Estes Park.

ANNUAL PLANT AUCTION — Saturday, April 24. All Kinds of Plant and Garden Supplies.

THIS SPECIAL ROSE ISSUE

This issue specializes on roses, their selection, planting and maintenance. The opinions and experiences of some of Colorado's best rose growers are given here. It should be of great benefit to all who love roses, both old-timers and newcomers. The material has been assembled by Vella Hood Conrad for the Denver Rose Society, and we appreciate very much their cooperation. You will notice that there are almost twice the usual number of pages, and the single copy price has been set at 50c. We are confident that enough extra copies will be sold to

those who appreciate roses to justify our extra expense in publishing this. It should be the bible of Colorado Rose growers until something better is printed. It should make a very nice gift to gardener friends on all special occasions.

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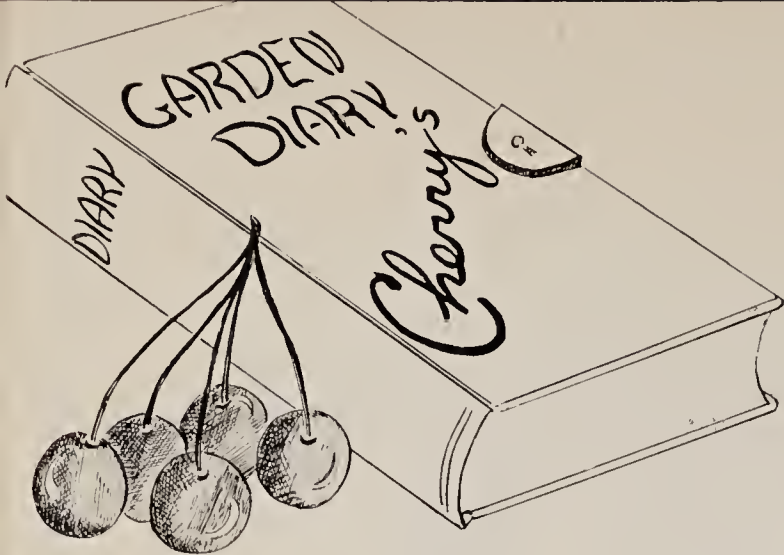
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LOOK AND LEARN GARDEN TOURS

Look and Learn Garden Tours have been planned this year for Wednesday, May 26, 9:30-5:00; Sunday, June 27, 1:00-7:00; Saturday, July 24, 10:00-6:00; Thursday, September 2, 9:30-5:00.

Will each one who knows of good gardens suitable to be shown on these tours phone or write Horticulture House at once their nominations so that a schedule can be made up very soon.





## CHERRY LEARNS HOW APRIL SHOWER BRING MAY FLOWER

**B**EING the April section of Cherry Dendron's Garden Diary. Cherry's garden experiences bring in her easy-going young husband, Red Dendron; his father, Phil O. Dendron, retired farmer; his mother, Rhoda Dendron, who has a green thumb with house plants; Cherry's father, T. H. U. Green, M.B., scientist; and her mother, Paris Green, modern garden enthusiast.

April 3. All last night the wind blew and this morning it is raining: cold driving rain that makes me want to stay indoors with my feet in front of the fireplace. That's an idea. I'll start a fire in the fireplace. . . . It won't happen; I've kept the kindling box full of dry chips all winter when the weather was good, and now it is empty and I just can't start a fire without newspapers.

Dad braved the weather and came by in the middle of the morning. He was complaining about the bad weather and he took time to explain to me that what seemed "bad" for me might be good for all the trees and lawns and flowers outdoors. He went into detail to show me how that plants were what he called "soup eaters" and must have all their food in soluble form to be able to use it. He explained about the tiny root hairs that took up food and water from the soil and sent it flowing up the stem of the plant to the leaves where it was transformed by the action of the sun on the green in the leaves into food usable by the plant and later by animals. This was a fascinating story and helped me to understand why we must care for plants as we do; and why that this rain in April made conditions right for flowers in May.

April 4. It's still raining this morning but the farmer in Dad Dendron would not let him stay indoors, so he came by and tramped mud all over my clean floors. I told him about some of the wonderful things that I had heard about plant growth from my father yesterday. He went on to explain some of the practical applications of these things that all farmers must know to survive. He explained why that we must keep the roots of all plants that we were moving covered with wet burlap or soil until they were planted back and how that it was a good practice to cut back or thin out shrubs when we moved them so that we would give the roots a chance to catch up in their interrupted work before having to maintain too many branches.

I got some old dusty books off the shelf and read more about plant growth and tried to learn the meaning of words that I have been hearing lately such as, photosynthesis, chlorophyll, carbondioxide, transpiration and cambium. This is all going to make my work in the garden more interesting next summer because I will know a little of the "why" of the thing that I have previously done just because everyone else did it that way.

April 10. We have actually had some good weather for a few days and this morning I got Red to help me prepare a place to plant our roses. Dad came by and wanted to help. He dug down about a foot and a half and began



to run into sandy subsoil so decided that our drainage was all right. Then he had Red throw out the soil two spades deep all over the area of our new rose bed. He thoroughly mixed a good lot of peat and some cow manure with this soil and then threw it back. Oh, yes, he had me sprinkle a little superphosphate down near the bottom of the hole and again near the top. He explained that much of our soil lacked phosphate, but that this plant food did not leach into the soil readily from the top so it was necessary to put it down into the soil where the roots could reach it BEFORE planting. He explained how gardeners had used bone meal for this purpose for many years, but that it released the phosphorus so slowly that it did little immediate good. He did not let us put any fertilizer of any kind in the soil where it could come in contact with the roots.

By noon Red was so exhausted with his strenuous bossing of the job that he lay down after his lunch and slept for two hours.

April 11. The roses that I ordered several weeks ago were delivered yesterday and from all I have been learning about plants I thought that they should be planted out at once. Red was still groaning and complaining about his back so I unpacked the roses and dug a hole in the garden and covered them completely with moist earth. In the afternoon, Dad came by again and got him to help me plant them. He was very particular to trim any damaged or broken roots and to spread out the roots carefully on a mound of soft earth in the bottom of the holes that Red had previously dug. I held them (and stuck my finger on a thorn) while he sifted in loose soil around the roots. Then he took the nozzle off the hose and worked the end to the bottom of the hole and settled the soil around the roots from the bottom up. Then he filled in more loose soil and mounded it up around the stems. These roses have nice plump stems and fresh-looking roots, so different from those my neighbor got from the fruit stand in June last year. They should grow well and be happy.

April 17. We had a few spells of bad weather early in the week, but that is all gone now and it is very pleasant. The sun began to feel quite warm towards the middle of the day and when I dug in the soil it smelled so fresh and clean that I just wanted to get down and roll in it like a horse.

I believe that this week end we will seed some of our own lawn area that we cleaned up, rough-graded and fertilized earlier. I'm going to make an old-fashioned "Bee" of this lawn job and ask Red's folks, my folks and the neighbors to come over and help. Then us women folks will get them a good lunch and have a lot of fun getting caught up on our talking. We will let the men folks do the heavy dirt moving outside (with some suggestions from the side-lines of course).

The men decided to put on a heavy layer of some stuff that they called "peat and sheep" and then hire a rototiller to work it in. After lunch they all took rakes and long planks that they called "floats" and went to work on the fine grading. They raked off all the rocks and rough stuff and broke up most of the clods, then they really bent their backs and smoothed off the surface until it looked as level as a floor. It was hard work, but appeared to be fun for all but Red, who found occasion very frequently to lay down and squint across the area in all directions to see if there were irregular places that needed filling in or leveling off.

April 18. It's cloudy this morning but we have had no rain lately, and



luckily no wind for we intend to seed our new lawn today. Red thought that he could do it all right but got so involved and excited that I took the job over and by bending my back and giving a good flip with each handful of seed I got it rather evenly scattered. Red just barely dragged the rake over the surface then and spread a little old humus over the top and started watering the first time by hand. This watering turned out to be a long tedious job but it surely looked nice when it was all done.

We all went over to Mother and Dad Dendron's for dinner and Mother Dendron showed us how her tuberous begonias, that she had started in flats of peat, were beginning to start out little sprouts. She was also filling some shallow boxes with loose soil getting ready to plant some seeds of annuals for next summer's garden.

April 24. Again we had a few stormy days early in the week, but it was warm and pleasant today. I have had quite a time since, trying to keep the surface of our newly seeded lawn moist until the new grass comes up. I am glad that the "boys" spread a little layer of peat over the surface when they were all through so that it holds the moisture better and does not wash away easily. Mother insisted that they roll the lawn when they were all through. She thought that it would look so much better but in that Dad disagreed. I said that it would pack the surface and make it harder to water. Once, he gave his way and we are glad now that he did.

I left Red "resting" and went over to Mother's this morning. She was bringing in twigs of Willow and Forsythia to set in water to try to get them to come out in leaf and bloom a little later. Dad had phoned some arborist that he had seen advertised in the Green Thumb to come and spray his trees and when necessary. They came just before noon and sprayed his American Elm trees for European Elm scale, and while they were working they also covered some oyster-shell scale on the Lilacs and Dogwoods and so gave them a thorough drenching with the smelly, oily dope that they were using. They promised to come back later in the spring and take care of the spruce and pine trees with a lime-sulphur spray.

April 25. Mother came over after church today all excited about some ideas that she had about planning our drapes and the flowers in the plant boxes to match. It might not be such a bad idea at that. She thought that we should plan our indoor and outdoor decorations to fit together and carry out one "theme", as she called it. She also rattled off a lot about Unity, Balance, Rhythm, that I couldn't understand. Some people seem to be able to arrange artistic and satisfying things without any training and others make a mess of things after they learn all the rules. It just must be partly instinct and good judgment. I just know when I like a thing and when I don't and can't tell anyone why.

The wind came up this afternoon and dried out our new lawn about as fast as I could water it. I saw a few blades of grass just peeking through some of the house where it was warmer. We'll have a good green lawn yet. I also saw some sprouts from bulbs peeking through the dry crust on the surface. I'm going to give all our flower beds a good mulch to help keep the soil surface from baking and hold everything back a little.

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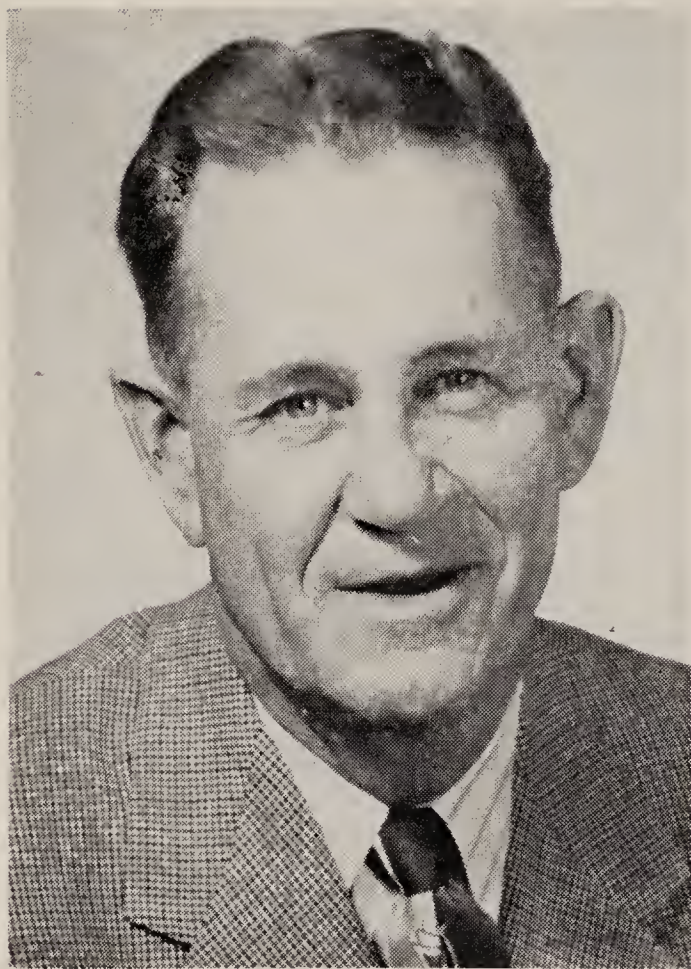
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## THE DENVER ROSE SOCIETY

By LOU APPELDORN



**R**OSES have been the common denominator of many worthwhile things. Mr. A. T. Green, a true rosarian, realized this and took his list of Denver members from the American Rose Society list of 1947, and called personally on all those members in behalf of roses and organizing a local society.

In the summer of 1947 they met at Horticulture House and organized The Denver Rose Society. Mr. Green was elected president to serve the remaining year and was also elected president for 1948. Membership dues at that time were \$1.00 and when additional things were to be done the members came through — through with help, be it moral, physical or financial. Both Mr. Slagle and Mr. Stovall must be credited here. Probably the most spectacular show ever given by the society was engineered by Mr. Slagle. A group of 29 exhibitors

drew a crowd of some 10,000 people.

The history of the organization far as available records go, show that at the end of the first year the Society had a membership of 44. Presidents served in the following successive order: Mr. Jack Withers, 1947; Mr. A. E. Albera, 1950; Mr. Maurine Marshall, 1951; Mr. Jack Faust, 1952. Mr. Faust did much toward the society becoming of age. A year book was printed, with a slogan "Let's Grow Roses for Fun," and the membership roster boasted 177 members. A tribute to Mr. Faust's untiring work in behalf of the society.

At the annual dinner held in November, 1952, Mr. L. W. Appeldorn was installed as the newly elected President; Mrs. N. B. Walters, First Vice President; Mr. Clyde Learner, Second Vice President, and Mrs. I. Wilson, Secretary-Treasurer.

Rose shows have been one of the major events of interest. Beginning with one show in the fall of 1947 and going to two shows a year in 1951, 1952, and 1953, a tradition has been established. Interest and membership continue to grow. In February, 1953, the American Rose Society presented the local society with a charter as an affiliate of the national society. Mr. E. O. Nord was elected Rocky Mountain district representative and five consulting rosarians appointed. Two successful shows were held in 1953 with the number of exhibitors and public interest increasing.

The annual dinner for 1953 was outstanding both as to appointments and attendance. Our secretary reported a total membership of 220 members. Mr. Appeldorn was installed as the "new-old" president.



Officers installed to serve with him: Mr. Charles Vollick, First Vice President; Mrs. Ray Turnure, Second Vice President, and Mrs. Lee Wilson re-elected and installed Secretary-Treasurer.

The year 1954 promises to be a red letter year for the society. Through the efforts of some of our loyal members and members of the Botanical Foundation the first Botanical Garden and Rose Arboretum in Denver's history will become a reality. The arboretum will eventually consist of some 8000 roses in carefully prepared artistic beds with a beautiful surrounding of scores of botanical plantings backdropped by the Museum of Natural History.

This Rose Garden should prove an everlasting living tribute to that small group of men and women, who in the summer of 1947 met with a common purpose in mind, that of growing bigger and better roses for fun, by the medium of an organization, "The Denver Rose Society."

Mr. Nord is a writer, lecturer and accredited Rose Judge of the American Rose Society, and has been a member for the past 16 years. He attends all the national meetings, and has judged at the last five of the National Rose Shows held by the American Rose Society. At present is organizing plans for a District Rose Society Meeting and Rose Judging School to be held in Denver some time in the fall of 1954.

Consulting Rosarians

Through our affiliation with the American Rose Society we have the services of eight local consulting Rosarians. They are experienced and willing and please feel free to call on them for information.

- Dr. John A. Bouslog, 6210 E. 17th Ave. ....FR 1920
- Mr. A. T. Green, 285 E. Dartmouth .....SU 1-0307
- Mr. E. J. Maynard, 2372 South High .....SP 4262
- Mr. A. E. Albera, 782 Holly.....FR 1339
- Mrs. C. F. Jones, 3241 E. Ariz.....RA 8338
- Mr. Roy Littlejohn, 5966 W. 35th Ave. ....BE 3-1261
- Mr. Jack Withers, 9230 Lombardi Lane .....BE 7-0022

EVERETT O. NORD

Director, Rocky Mountain District

Mr. Nord is a landscape architect and sprinkler engineer; was a charter member and organizer of the Denver Rose Society, past President of Men's Garden Clubs of Denver. Now Associate Editor of MEGA, the Men's Garden Clubs of America magazine.

He has assisted in the developing of the Municipal Rose Garden at Boise, Idaho; has been rose tester for the Men's Garden Clubs of America and the American Rose Society at Denver for the past 7 years; planted dozens of rose gardens in all the Rocky Mountain States, and gives roses and Rose Society memberships away to encourage love of the rose.





# LANDSCAPING WITH ROSES

By M. WALTER PESMAN

UNTIL recently roses were thought of primarily as a "show." They were carefully herded together in a special rose bed, often not well integrated in the garden. When their scarce blooms decorated a gaunt leggy bush here and there, the whole neighborhood had to come and admire them. June was the "month of roses" and for the rest of the year one was to be satisfied with the bare ground and ungainly plants.

Colorado, at best, was not to be considered good rose territory; roses needed extra soil, extra care and were always attacked by insects and diseases. Let Portland and Pasadena boast of their roses, where nature intended that roses should grow.

Luckily that time has passed, and is now gone forever. Many things have happened. In the first place we now have gorgeous, hardy roses of all colors and descriptions, roses that do well in Colorado, without eternal babying; they have good foliage, and they keep blooming into November. In the second place new types of roses have been developed that can be used in a variety of locations in the garden—not only primly displayed in a rose bed.

So now the landscape architect is pouncing upon them with a vengeance. What an opportunity: to use the favorite flower of all mankind during the ages, and have it contribute generously to the all-around beauty of a garden.

Even the formal rose garden can now be attractive the year around. Some of the new patented roses have good-looking, luxurious foliage; remember Peace, and Charlotte Armstrong, Lowell Thomas, and Mirandy? There is less of the bare soil in evidence that used to bother many of us in a rose bed.

As far as that is concerned, some rose lovers are now willing to admit some ground cover underneath to get away from all the bareness. I have seen brown oxalis, and low sweet alyssum, both of which do not compete with the rose itself, but act as a pleasant background. Shall we admit low tulips to act as an ear filler?

In the five following items the landscape effect of roses must satisfy the gardener who wants more than just a "show."

1. The *general effect* of a garden must be good, and never marred by poorly designed lines, surfaces and textures.

2. Roses must do more than just provide a picture during one month of the year. An *all-year effect* is to be sought for; even in some of the winter months, trellises, for instance, might be pleasing to the eye.

3. *Mass effect* is quite important; that is why the floribundas are a good send. Lots of smaller roses blooming at the same time may do more for a garden than a few beautiful blooms no matter how choice if looked at individually.

4. *Hardiness* is imperative: a weeping plant may get sympathy, new admiration. Gardens are judged, not on the basis of well-meaning effort but a hardboiled result. We admit good health.

5. For good landscape effect roses must be available in a *variety of heights*. A garden is looked at from a number of viewpoints, at eye height, not looked down upon as a carpet. That is why these tree roses (just beginning to be tried here) are drawing attention: that is why climbers are welcome, carrying the eye away from the ground.





*Artistic arrangement of roses in the Robert Stovall garden.*

Now for some special, definite hints on the use of roses in a landscape way. These will be in addition to the well-known uses.

For a *Shrub Border* we can use both old and new types. There is no reason why we should discard such old stand-bys as Harrison's Yellow rose, Austrian Copper rose (sometimes called Denver University rose) and Father Hugo's rose, all with striking yellowish blossoms in the rose season. A double hugonis is reported as the Manchu or Korean rose (*Rose xanthina*), interesting for its fruit as well as for its yellow flowers.

Rugosa Roses, with their glossy goodlooking leaves, come in various colors of white, red and pink, with new varieties being brought out recently. They are a pleasing addition to the shrub-border, with the one drawback: susceptibility to chlorosis in this climate. We should try out the new kinds.

For color contrast in leaves, the Redleaf Rose (*R. rubrifolia*) is in-

teresting; its flowers are worthless. Lipstick is a European introduction that reaches five feet and has clusters of semi-double pinkish blossoms all during the summer.

There is no reason why a number of good hardy roses should not be used in the front of the shrub border to lighten it up. Floribundas are particularly good in this way.

*Bank Planting.* Instead of hard-to-maintain grass banks we may often create a woodsy planting of scrambling roses, such as the Prairie rose (*R. setigera*), Sweetbriar, Meadow rose, Wichuriana rose and a number of our native roses. Many of the latter have good-looking reddish twigs, neat pink blossoms and good fruit that stays on most of the winter. And hardy! Just stick in a few roots here and there and forget about them; they'll surprise you even if you neglect them. Even climbing roses can be used in bank planting. Many a tourist has commented on the display of Paul's Scarlet Roses at the entrance to Glenwood Springs.



Strange, isn't it, that so little has been done with *Rose Hedges*? In view of the fact that our modern dwellings often require low hedges, and seeing how anxious we are to get away from tedious clipping of a hedge, it seems that Floribunda Roses are a "natural." Else Poulsen is particularly good, it is a free bloomer, goes well in mass, and requires very little care. Fashion is giving a good account of itself. Floradora should be tried as a hedge. Others, a bit smaller, might well be used as an edging, even for a good-sized flower border.

Well, that is just a sample of the

many uses roses can be given in landscaping. Once we are liberated from the idea that a rose is such a precious thing we must not make it too "common," then we are on the road to trying roses in unorthodox ways and in unorthodox places. Doesn't that close a sort of cycle? After all the old-fashioned rose appeared in intimate home gardens; it was the flower of the masses, and of home folks. It would be almost humorous to find that the gorgeous patent roses, started as high-priced novelties for the modern aristocrat—should turn the tables and be one of the means whereby again, the rose becomes home folk

## TYPES OF ROSES

By MR. AND MRS. E. J. MAYNARD

**D**ID you know that the rose was given the title "Queen of Flowers," 2,600 years ago? Did you know that as early as 4 B.C., the Romans were producing roses during the winter in what we would term a hothouse? Did you know that Mark Anthony, during his historic famous visit to Queen Cleopatra was fêted at a banquet where the entire floor of the hall was covered to a depth of 18 inches with rose petals?

So there have been roses and roses for many, many years. And they are just as ever precious today. Roses have been considered sacred and symbolic. The rose is the national flower of both England and Persia. Today, in the United States, there are grown more than ten million rose stock plants. More than 40,000 blooms are used in distilling just one ounce of Attar of Roses. The history of the rose is most interesting. It is the Queen of all flowers and has long been a universal favorite. It is to be found in the lowly garden as well as in the gardens of the wealthy. Roses can be enjoyed in a garden or cut

and brought indoors. It would be interesting indeed to know how each of us came to learn about roses. A good beginning is so important.

As we journey through the garden let us first acquaint ourselves with the favorite rose TYPES. There are about a dozen types available but roses generally are classed in two groups, those that bloom once a year, usually early in the summer, and those that bloom throughout the summer.

Centuries of horticulture have produced and developed many varieties of roses.

Roses can be grouped into a simple classification with three main classes: shrub roses, climbers and bedding roses. These classes can be further divided.

First, we have the SHRUB rose. In this group are the familiar Rugosa



*Hugonis rose.*





roses. They are often used for hedges and borders. They can be used in place of shrubs. They are the old-fashioned kinds like those we used to find in our grandmother's gardens. They are valuable for their hardiness, and some, such as Rugosa, have spiny stems and wrinkled foliage. As a group they are usually extremely hardy and require very little if any pruning. Some of these are known as the Damask, Moss, Cabbage, French, Scotch or Sweet Briar Roses. The Harrisons Yellow has long been an old favorite in our grandmother's gardens. The Austrian Copper is now a popular favorite and can be distinguished for its deep copper tones and hints of yellow. It is a large shrub and needs lots of room in the yard. These large shrub roses are not to be planted in a formal rose garden but placed among the regular shrubs.

Second, we have the BUSH roses. These are the regular bedding roses and consist of the prevailing favorites, the Teas, Hybrid Teas, Hybrid Perpetuals, Polyanthas, Grandiflora and Floribunda. There are also the Miniature, Fairy or Baby Roses. The nursery catalogs are aglow with pictures of these types and one must hide the checkbook to restrain oneself from wanting them all.

The Hybrid Tea Roses, as the name suggests, are hybrids resulting from crosses between the delicate Tea Roses and the old favorite Hybrid Perpetuals. They are often called ever-blooming or monthly roses because of their free-flowering habit. They are vigorous in growth and spectacular in their range of color and they flourish in gardens throughout the entire country. The list is long, but, for a few examples we find in the pinks, Helen Traubel, Charlotte Armstrong. The reds, Mirandy, Nocturne, Rubaiyat, Heart's Desire and Crimson Glory. The yellows, Lowell Thomas, Sutter's Gold and McGredy's Yellow. The whites, McGredy's Ivory, and Rex Anderson. And we must not fail to mention one of the outstanding roses of all times, Peace, which is yellow with a pink cast.

The Hybrid Perpetual is a large bush rose which produces one crop of bloom, usually in June or July. These perpetuals grow twice the height of the average Hybrid Tea. They are exceptionally vigorous and produce many large blooms. A couple of these are American Beauty and Druschki.







The Floribunda is considered the large, flowering type of Polyantha. These are becoming very popular in borders, along walks or drives. They are prolific bloomers and are grown in most of the colors of the Hybrid Tea Rose. They usually grow quite bushy and no garden should be without them because of their wealth of color the whole summer. They are nice for cutting but do not have the lasting qualities of the Hybrid Teas. A few good ones are Ma Perkins, Worlds Fair, Pinky, Vogue, Betty Pryor, Elsie Poulsen, Summer Snow and Improved Lafayette.

The Polyantha rose grows like the Floribunda and blooms profusely all summer. It also grows in clusters but where there would be a single flower on a Floribunda you will find clusters of small, tight little flowers on the Polyantha. The names are interchanged and for the most part they are all called Floribundas. They are also used as borders along walks. The Floribunda group needs less care and time than the Hybrid Tea and are best planted in groups. A few Polyanthas are, Gruss An Aachen, Margo Koster, Glori Mundi and Chatillion.

There is a new class just about ready for the market called the Grandifloras. It is supposed to fit between the Hybrid Tea with its one large bloom and the Floribunda with its clusters of blooms. This should prove to be the everblooming cluster with larger, more uniform flowers. We haven't yet seen them.



Then we have the tiny rose called the Miniature, Fairy or Baby Rose. These tiny roses vary in height from a few inches to a foot or more and are especially useful for edgings along the walk or in rock gardens. They are free-flowering and grow equally well in pots or porch boxes. Midge is the tiniest rose (red) and Sweet Fairy, an apple blossom pink with true rose fragrance. They are just right for a thimble arrangement.



CLIMBING ROSES are divided into two groups, the large flowered and those with flowers in clusters. These can be divided into four groups, the semi-climber or pillar rose and the creeper or trailer rose. Among the large flowered we find the New Dawn, June Morn and Summer Snow. The small flowered are the old-fashioned kinds, the Crimson Ramblers and Dorothy Perkins. Then we have the Creeper or Trailer Rose, Memorial Rose being a good example.



The climbing Hybrid Tea Rose is still in the experimental stage in this climate. The bush usually grows vigorously but has few blooms. They are worth the experiment if one has the room. We still recommend the good old standby, Pauls Scarlet, a lovely red climber that is to be found over so many porches and fences in the Denver area. True, it blooms just once in the spring, except for an occasional bloom, but that once is breath-taking with its riot of color. There are few climbers that bloom throughout the summer.



The TREE ROSE is the result of budding regular hybrid tea roses onto a tall understock. They can be grown in Colorado under ideal conditions but they must have extra protection during the winter. They must be carefully wrapped and boxed or be taken up and buried deep in the ground. They are really too much work for the ordinary gardener and very few are grown here.

When buying roses—**BUY ONLY THE BEST!** Any of these will give a world of enjoyment with only a little love and care. Start with a few bushes but **DO** have a garden of Roses.

*These sketches, by Pauline Roberts Steele, show the comparative sizes and characters of growth of the different classes of roses, also the differences in character of the individual blooms.*







*The Golden Rose of China, Rosa hugonis. Photo by K. N. Marriage.*

## FOUR ROSES

By K. N. MARRIAGE

GARNETTE—Hybrid polyantha, double, 2 feet

GROOTENDORST—Pink, Rugosa, semi-double, 3 to 4 feet

HUGONIS—Briar, yellow, single, 6 feet

MAX GRAF—Hybrid rugosa, pink, single, 1½ to 2 feet

WITH plants, and upkeep of gardens, leaping ahead in cost we are—or should be—careful to select our plants with an eye to their lasting quality and their ability to resist marauders as well as to their ornamental value. The above four come out high on the list.

GARNETTE is a more glowing red than any garnet of my acquaintance. Well-formed, small flowers, very double and fragrant, but its especially good points are persistence in blooming and persistence in keeping when cut.

PINK GROOTENDORST, one of the best of the Rugosa hybrids, its great charm is its color, a true warm pink, beautiful under dinner table light—light, not candle darkness. When its June and July dash of bloom is over it still goes on trickling blooms until frost.

HUGONIS, Golden Rose of China, another of those introductions from the high windy plateaus of western

China that feel at home in our prairie and foothill gardens. Father Hugh Scanlon little knew how we in Colorado would be singing his praises when he sent a few seeds of this Kew long ago.

Good qualities: well-formed inch flowers—soft yellow rather than golden—on arching branches, decorative small leaves, warm brown winter color of bark. Makes a villainous thorny hedge if needed to discourage unwanted animals.

MAX GRAF, a bushy vigorous trailer, excellent as a ground cover. Single shapely flowers are a glowing pink with yellow center. This again is a dependable “keep out fence.” No I haven’t had trouble with my neighbors, but if you have, these are gentler suggestions than an obvious and bristling wire fence.

All four of these enjoy good conditions as well as their regal sisters. One is a mixture of:

1 part peatmoss



1 part rotted dairy manure

3 parts good topsoil

Krilium according to directions on container or to generosity of your heart. Too bad if George Kelly is obliged to omit this plug. Your roses

would benefit enormously—mine did.

Any rose with Rugosa blood appreciates an extra measure of peat at its roots and a dash of aluminum sulphate worked into soil surface each year in May.

## GREAT GRANDMOTHER ROSE

THE moss rose, with its great furry buds pictured here probably has history that goes back further than any other rose in the state. It was first known as belonging to the great-grandmother of the present owner, who lived in Dutchess County, New York. It was taken by the grandmother when she later moved to Michigan and the mother brought it to Colorado in 1875. The grandmother lived to be 96 years old and at the best estimate the rose must be at least 250 years old. It may have picked out some in that time and it is possible that the original plant

has disappeared, but the present stems at least came from the original.

After spending some time in a Denver garden the owners moved to Santa Barbara, California, and took the plant, carefully packed, with them. Some years later it was moved back to a Denver garden with an immense ball of earth to assure its safe transportation. It has been blooming cheerfully and persistently in Denver for many years now, and all indications are that it may look forward to many, many years of life and of bringing beauty to the garden of its owner.





## CLIMBING ROSES

By JOHN S. BOUSLOG, M.D.

**C**OLORADO is a state of quick temperature changes. It challenges those of us who love to garden to be ever in the quest for hardier plants that can stand these rapid changes.

I have refused to listen to those who would tell me that climbing roses do not do well here. With much care and devotion I am attempting to disprove this statement. Because I love roses I chose a few beautiful climbing rose bushes to plant on a wire fence as a screen separating the rose garden from the front yard. The roses are two years old this spring. I chose a Climbing Goldilocks, Pink Cloud, Coral Dawn, Aloha, Inspiration and Dream Girl. All are doing well.



*Paul's Scarlet Rose.*

Pink Cloud and Coral Dawn are my favorites as they are in bloom as much as my hybrid teas. The others are good bloomers. Pink Cloud and Coral Dawn are particularly lovely in that the shade of pink is rich and deep. Toward fall the color is much deeper. Goldilocks won a blue ribbon for me at the Fall Rose Show.

I have two climbing Alohas. One is four years old and has acted only

as a hybrid tea. The other has grown to a height of five feet. The other climbers have grown to heights of six to eight feet.

The roses are in full morning sun and are partially shaded in the afternoon. To protect them from our hot and drying sunshine I have covered the bushes on the south side with strips of burlap anchored securely to the fence. The north exposure is open and with a careful check, as this article is being written, the canes are alive and a wonderful shade of green to the very tips.

Last year I was rewarded by many lovely clusters of blossoms. This year the report should be the same or better in that the roses have shown a normal growth with each year.

Climbing Peace is very disheartening. As a hybrid tea it is such a grand rose. In four years I have had two blooms. I have protected Climbing Peace this year and note that it is alive to the top of my garage.

I may have some winter kill in the canes before spring is really here but to date I am very well pleased with my experiment.

I have not tried the other hybrid teas, such as Forty-Niner, Show Girl, etc., that are now being added to the list of climbers.

I hope if any of you try the climbers that I enjoy so much you will have as good success.

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### A NATURE WORKSHOP

At the Morton Arboretum, Lisle, Illinois

2 Sessions:

**JUNE 13-19; JUNE 20-26**

Write for Program

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## MINIATURE ROSES

By VESTA TURNURE

**T**HRILLS galore await the gardener who has not yet grown the exciting little miniature rose. A rose which was all but extinct around the middle of the 18th century, but due to the interest and efforts of the late Robert Pyle we now have several varieties, and the color range has been extended to include all shades from deep red to pinks and white, also one yellow.

Tom Thumb a perfect little crimson red rose with a white base was patented in 1936. The first miniature rose to be patented, since then several have been patented.

We are finding many uses for the miniature rose in the home and garden. They are beautiful in small arrangements, the perfect little blooms and buds make wonderful corsages for the ladies, and men like them for boutonnieres. Children adore them and love to plant them in their own miniature gardens. They make a nice edging plant around the perennial border. Plant a group of them in the rock garden and they will be the highlight of the rockery, blooming continuously through the season.

Once established the miniature rose is exceptionally hardy often retaining green leaves all through the winter. They require no special conditions, just sunshine, good drainage, good garden soil and good air circulation. Otherwise care for them the same as hybrid teas.



### NATURE WORKSHOP AT MORTON ARBORETUM

May Theilgaard Watts will conduct two Nature Workshops at the Morton Arboretum near Chicago this year (June 13 and June 20). Scout and recreation leaders will have here one of the finest opportunities to learn the lore of the wild and especially the interesting ways to teach it to others. Mrs. Watts has no equal in this country in this line. Many will remember her talks at the Rocky Mountain Horticultural Conference a few years ago. More information on this unusual opportunity may be had at Horticulture House or by writing Mrs. Watts at the Morton Arboretum, Lisle, Ill.







*Peace and Pixie Roses.*

## MY TEN BEST ROSES

By ELSA K. JONES

**T**HE American Rose Society each year publishes a list of roses with national rating. A national rating of 10 is a perfect rose; from 9 to 10 are the outstanding varieties; from 8 to 8.9 are excellent roses; from 7 to 7.9 are good; from 6 to 6.9 are fair; from 5 to 5.9 are of questionable value; below 5 poor. The rating may change from year to year as roses are grown all over the United States and Canada by rose growers who are willing to experiment and pass on their observations.

The following have the highest rating for 1953 given by the American Rose Society:

### Hybrid Tea Roses

1. Crimson Glory, red..... 9.
2. Peace, yellow blend..... 9.
3. Charlotte Armstrong,  
light red ..... 9.
4. Mme. Henri Guillot,  
red blend ..... 8.
5. Etoile de Hollande,  
medium red ..... 8.
6. Christopher Stone,  
medium red ..... 8.
7. Dainty Bess, light pink..... 8.
8. Picture, light pink..... 8.
9. Eclipse, medium yellow..... 8.
10. Helen Traubel, pink blend.... 8.

### Floribundas

1. Fashion, pink blend..... 9.



The Fairy, light pink.....	9.3
Carrousel, medium red.....	9.1
Red Pinocchio, dark red.....	8.7

### Climbers

Paul's Scarlet, medium red.....	9.2
Santa Anita, medium pink.....	9.0
New Dawn, light pink.....	8.8

Rose growers in Denver and surrounding areas have many different problems in growing roses. We must judge a rose as to its ability to stand our sudden drops in temperature in the spring and fall. We do not have as much trouble with black spot as they do in a damp climate.

The following are my ten best roses:

1. Peace, yellow blend.....	9.4
2. Crimson Glory, red.....	9.5
3. Helen Traubel, pink blend....	8.4
4. Christopher Stone, medium red .....	8.8
5. President Herbert Hoover, pink blend .....	8.2
6. Chrysler Imperial, medium red .....	8.3
7. Fred Howard, yellow blend..	7.2
8. Eclipse, medium yellow.....	8.5
9. Suzon Lotthe, light pink.....	7.1
10. Mme. Henry Guillot, red blend .....	8.9

### Floribundas

Red Pinocchio, dark red.....	8.7
Fashion, pink blend.....	9.5
Ma Perkins, pink blend.....	7.2
Improved Lafayette, medium red .....	
The Fairy, light pink.....	9.3

### Climbers

Paul's Scarlet Climber, medium red .....	9.2
New Dawn, light pink.....	8.8

### Miniature

Sweet Fairy, light pink.....	
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When I try to pick my ten best roses, I am sure that each week in the summer I would think a different

ten roses were the best. In 1930 my best roses were Dame Edith Helen and E. G. Hill. Looking at my list, I could not put in Dainty Bess, Picture, Lowell Thomas, E. G. Hill, McGredy's Scarlet, Mme. Jules Bouche, Joanna Hill, Rex Anderson, Condesa de Sastago or Taffeta.

In my floribundas I could not include Permanent Wave, Dagmar Spath, Vogue, Frenchum or Snowbank. In fact I have 70 best roses.

## COLORADO GROWN NURSERY STOCK

There is no question about the superiority of Colorado grown trees and shrubs, but the fact is that nursery stock can not be grown to a given size here as cheaply as in the east where the soil is deeper, the season longer and there is natural rainfall. For this reason the local nurserymen are shipping in more and more of the material that they sell. There still may be a difference in this stock as the customer receives it. The larger nursery firms may ship in in carload lots and carefully store this stock in a moist and cool cellar or "heel in" outdoors where it can be kept fresh and full of life until the customer buys it. Sometimes the same plant when shipped in a small bundle is delayed, until it arrives dried up and lifeless.

Then the big difference in buying from a local man who knows what will grow here and how it should be cared for and buying from some one in a distant state who knows nothing about our peculiar climatic conditions may be the difference between getting your dollars worth of landscape value and failure.

The Better Business Bureau slogan is certainly true here; "If you don't know your merchandise, be sure that you know your merchant."



## ROSES IN THE LANDSCAPE PLAN

By GEORGE M. FISHER

This story was originally written for southern Texas rosarians. It had so much interesting material in it that some inapplicable paragraphs were deleted and it was made suitable for publication here. The similarity of rose growing practices and problems to ours is striking.—Ed.

**T**HE use of roses in good landscape design of the home grounds is a long neglected yet important feature of rose growing to the gardening public. Most garden writers very lightly pass over the subject and merely class roses along with other flowers in the garden border. This is not new; the rose buying home gardener has been seeking the information on better design with roses for some time, and it is the responsibility of advanced rosarians to provide them with the help and information. They can help by recommending the proper rose varieties and types for each particular locality, and help by recommending their use in such a way that having them in the garden embodies the principles of good garden design.

Roses are one of most popular and attractive of garden plants, and when properly used in garden design they can likewise be the most useful of ornamental plants. For the beginner in rose garden design the inability to select the most hardy and disease-resistant varieties, until they are able to successfully grow the more difficult varieties, has been the greatest single cause of disappointment. Gardeners are constantly requesting more disease-resistant roses for landscaping use, as many do not have the time or inclination for constant spraying and dusting required of some varieties. The roses of the future to be top-sellers must possess more disease resistance and better form and foliage.

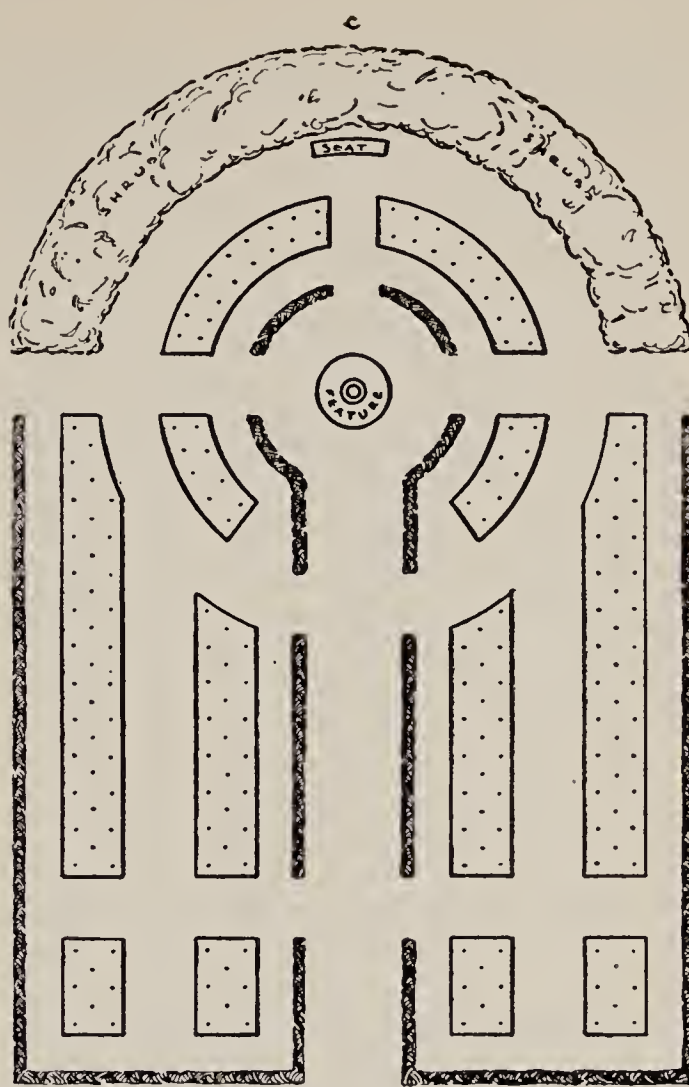
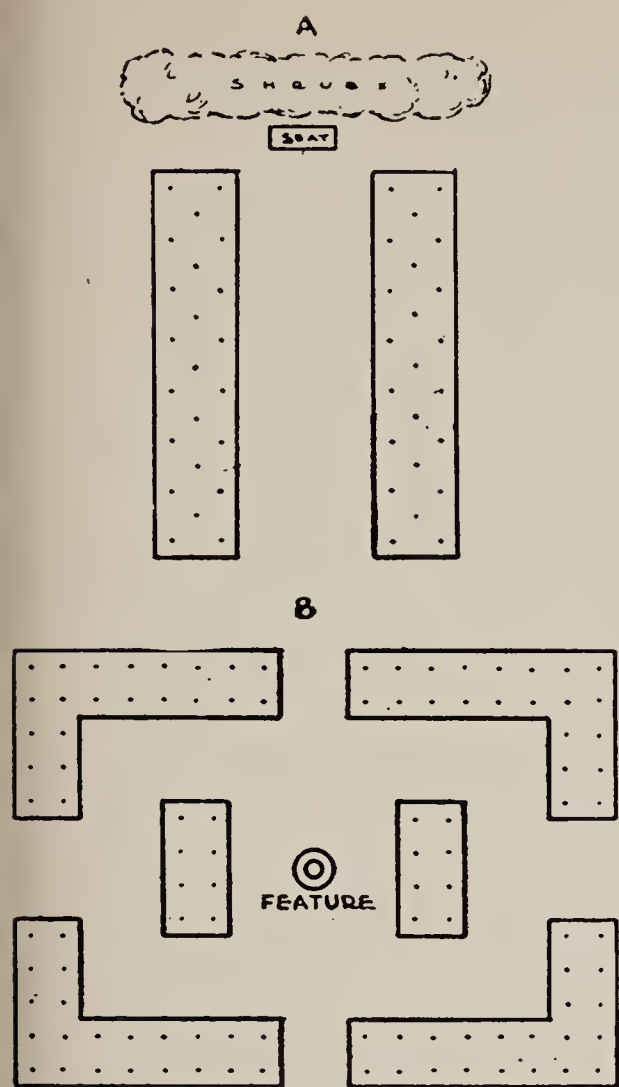
Too much of the effort in breeding roses as well as the inclinations of the rosarians has been on size and color of bloom for exhibition and too little

on easily-grown dependability needed in good garden subjects. Probably the coming rose and at present the most important type from landscaping use are the Floribundas. This group of roses, the Polyanthas included, are the accepted lower-growing type for bedding, facers for other roses and for foundation planting.

For years, the so-called species roses have become quite neglected and forgotten because they cannot compete with the individual blooms of hybrid teas and hybrid polyantha types. But there is certainly a place for them in garden landscaping. They are sturdy, dependable and decorative at all seasons as a garden shrub. Surely a true rosarian would prefer to have species roses for flowering shrubs over some of the exotic deciduous shrubs we are attempting to grow with varied degrees of success. These larger species roses are effectively used and highly suitable for hedges, screens and border plants, and even in the smaller growing sorts as foundation and dooryard roses. It is pleasing to see in the last several years a revival of design in the garden with shrub roses, and more interest being shown by gardeners in living arrangements in the outdoor scheme.

Climbing and rambling roses should be more freely used in garden design by the rosarian. However, their use should be limited on the front foundation or public planting side of the house. Climbers can be used to screen unsightly buildings and garages in the rear grounds, to beautify or soften a back porch or arbor, or to act as ground covers or ramblers over walls.





or to cover fences, or in the strong pillar types to act as a background to planting of other roses.

A few rules can be easily followed in planting of roses for good landscape effect and likewise satisfy the optimum of growing conditions needed by roses. Roses are pretty much individuals and cannot be mixed in haphazardly with other plants, because of their rather exacting requirements. Give roses plenty of room for growth and air circulation on all sides of the plant or beds. This will reduce black spot and powdery mildew. Give them a place where there is sun for part of the day, morning sun being preferred, if a choice must be made. Keep them away from large trees or old established shrubs as they will not tolerate root competition which draws on their food and moisture.

If possible screen large plantings of hybrid tea roses from the main garden, or plant a low edging material in front of the beds to soften

down the unsightliness of bare stems and the dormant rose in winter. Try to give your rose bed a suitable background, be it shrub border of species roses or other dependable garden shrubs, wall fence or building. If the background is darker than the rose foliage it will enhance the color of the bed and the rose blooms will show up with more intensity. Be sure that the beds are properly prepared and well drained both as to slope of the bed and elevation. A grass path on both sides of a rose bed provides a nice setting and allows for the ever important factor of air circulation. In locating rose plantings take careful note of your views out of the various windows looking into the garden, so that they will be a joy from inside as well as the outside, and a constant source of living natural floral arrangement. Above all avoid having rose beds just "floating" around out in the middle of the lawn without any rhyme or reason, or in the Mid-Victorian garden hangover, as we too often see



them. It might be well to distinguish between a bed where roses are grown strictly for cutting and exhibition, and where they are part of the landscape design of the garden.

I believe a common error made by new rose growers is the use of too few roses of a variety and too many varieties. Fewer varieties with heavier masses of one color or variety makes for a much more desirable garden and landscaping design, rather than the confetti pattern so popular at the present time. Garden club members experienced in making arrangements soon learn to plant several plants of one variety for sufficient cut flowers in bouquets and arrangements.

Several of the hybrid Polyanthas, or our so-called Floribundas, which are increasing in popularity and will probably be the most popular rose of the future for landscaping, are fairly disease-resistant. The bushes are in general taller, and the flowers larger and quite useful for cutting. Among the leaders are Gruss an Aachen, Dagmar Spath, D. T. Poulsen, Donald Prior, Vogue, Red Ripples, Fashion, and Ma Perkins. The old dooryard roses are coming back into favor again, as dooryard plantings again take the spotlight for the low modern house and patios about the doorway. For this use we have two excellent roses, completely immune to blackspot—Maybelle Stearns, a pink hybrid setigera (Maybelle Stearns might be classed as a peach colored variety) and Dooryard Delight, a light pink hybrid tea.

In taking up the climbers we are concerned with a pest, that of powdery mildew. Climbers with *Rosa wichuriana* parentage are for the most part immune to powdery mildew. Most all of the yellow climbers, alike to the yellow hybrid teas are highly susceptible to blackspot but quite resistant to powdery mildew. King

Midas is good, but gets some blackspot, and High Noon is in about the same category. In the pink climbers we might select Miriam's Climber, New Dawn, Dream Girl, Mary Wallace and Dr. W. Van Fleet, the latter variety being large and vigorous. New Dawn is rated by many rosarians as the best everblooming climbing rose of any color, considering the country as a whole. A few white climbers only might be classed as outstanding. Silver Moon, City of York and Glen Dale are all good. Climbing K. A. Viktoria is fairly pest resistant and to be recommended in the everblooming sorts. As in the bush roses the red climbers seem to hold the spotlight for landscaping use. Some that are not too bad about blackspot and fairly resistant to powdery mildew would include Paul's Scarlet Climber, Climbing American Beauty, Dr. Hue (which occasionally gets mildew), Stephen Foster and two highly resistant to mildew, Chevy Chase and Bonfire. The so-called everblooming red climbers are really quite unpredictable in our climate of summer having high temperatures and low humidities, and often a disappointment to the new garden planner when he expects the same performance as the hybrid teas give. Blaze is one of the most hardy, very similar to Paul's Scarlet. A promising improved variety of Blaze, which under our conditions is quite everblooming, is now coming on the market in good supply. Recommended also in the everblooming reds are the climbing forms of Crimson Glory, Etoile de Hollande and Christopher Stone.

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February and March, 1954

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## PREPARATION OF YOUR ROSE BED

By JACK N. WITHERS

**B**EFORE preparing your rose bed, you should study the lay of your ground and also the location. Your bed should be located so that the water will drain away from it and be in the sunshine at least two-thirds of the day, preferably the morning sunshine and not the hot afternoon sun.

When you have your location picked out, decide how much work you can put into it. You have put out a small fortune to buy the best rose bushes you can find. You should put out an equal amount of money and effort to get the best results from the roses.

Lay out the size of your rose bed according to the number of bushes you have or expect to have, figuring on planting the first row about fifteen inches from the edge of the bed and spacing your bushes at twenty-four inch centers.

Dig out all the dirt in the bed to about a depth of fourteen inches. If your soil at the bottom of the bed is fairly good, the next four inches can then be spaded up after you have put in about two inches of well-rotted cow manure, a thin coating of superphosphate and a thin coating of bonemeal. It would be advisable to include some peatmoss with this mixture.

After spading and mixing this up, you can refill the bed, putting in layers of three inches of dirt and an inch of manure with another layer of superphosphate, bonemeal and peatmoss and then mixing these all up again. Continue filling the bed with the same mixture but omitting the manure in the top six or eight inches until your bed is three or four inches above the surrounding area. This is to allow for settling and for good drainage.

You should have some extra dirt to haul away and this should be the last dirt that you took out of the bed.

If you have a very sandy soil, you should dig down about two feet and fill in the bottom with four inches of real heavy clay soil. The reason for this is to stop your soil and fertilizer from going down and eventually disappearing altogether. This will also hold your moisture, letting any excess water drain out the sides of your bed.

You can refill your bed with the same soil using the same proportions as above unless your soil is all sand, in which case it would be advisable to haul in new dirt.

You may think that this is a lot of work but when your roses bloom, you will be well repaid for your efforts.

## Mountain Peat Fertilizers

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Early spring is the time to add fertilizers to all garden soils and lawns. The frost is coming out, the plants are beginning to grow and nothing can give them such a good start as having a good hearty meal. The natural fertilizers, plus MOUNTAIN PEAT HUMUS provide this meal in its most acceptable form.

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## ROSE CULTURE IN FORT COLLINS

By MARTHA B. JORDAN

LITTLE attention did I pay to my mother's lovely garden when I was growing up except to watch it develop, cut and arrange the flowers in bouquets about the house.

Perhaps it was because my mother's roses grew luxuriantly and with but little care as our climate was semi-tropical, the soil was rich and the rainfall abundant. I might never have become interested in rose gardening had not my physician advocated an outdoor life for me to supplement his medical care. A flower garden was suggested as a means of sustaining interest while undergoing the fresh air treatment.

Well do I remember my humble beginnings when I set out six pansy plants while seated on a cushion in our small garden for I was too weak to stand. Up to this time I had had no experience in gardening and contented myself in watching my husband's climbing roses and mammoth dahlias by which he demonstrated that he was the member of the household with the Green Thumb.

So nicely did my six pansies respond that I decided to try roses as soon as we had a larger area for them. In 1938, we acquired our present home which affords ample room for rose culture. It was then that I began gardening in earnest as my health improved perceptibly from my outdoor occupation.

A friend of mine remarked that she did not see why anyone bothered to grow any other flowers than roses since they were the most beautiful of all blossoms. I heartily agreed with her, but in order to have a continuous succession of blooms, from early spring to late fall, I have included many other flowers in my garden. To illustrate: As I write this

on January 27th, bright yellow crocuses are peeping through the mulch under my south window while the roses are sleeping soundly, awaiting the arrival of spring. At this time I shall begin my cultivation of some three hundred roses.

Of prime importance in starting a rose garden is the location which affords at least four hours of morning sunshine. Protection from drying winds is highly desirable and may be accomplished by a hedge or fence, either of which also gives the proper background.

Perhaps the greatest challenge to success in this area may be expressed in three words: work, water and food. Work consists in the proper preparation of the ground which should contain top soil, cow manure and enough sand for proper drainage. Good soil is the basis of all good gardening. The bed should be well spaded, finely pulverized and freed from all weeds and grass. Now that you have the bed ready, the next step is selecting and planting.

In choosing plants, be sure they have heavy canes and good roots. To buy roses without either of these is a reckless waste. Where the roses come from is not as important as the treatment given them subsequently.

The depth to which a rose should be planted depends upon where the graft is located. Dig a hole deep enough so that when the rose is set and the hole refilled, the graft will be covered with one and one-half inches of soil. Spread the roots carefully over a mound of loose dirt in the bottom of the hole, fill half way and tamp the soil well around the roots; then fill the hole with water. When this has been absorbed, refill twice and let stand over night. On



the following day, fill the hole with soil and draw it up around the canes to a depth of six inches; allow the crown to remain covered for about ten days after which the banked soil may be removed.

Watering in Colorado is not only the life-blood of the farmer's crops but also of the rose gardener's success. They must be kept well watered at all times, in winter as well as in summer. Never allow the bushes to want for water. They should be irrigated and not sprinkled from above. The soil should be kept loose to facilitate deep penetration of the water.

Feeding: Roses should have at least three good feedings during the spring and summer. In Colorado, the first feeding should be applied about April 15th, the second about July 5th and the third no later than August 15th. Late feedings stimulate new growth which winter kills easily. To feed the roses, dig a hole at one side, eight

inches from the canes, large enough to hold one gallon of liquid. I use the following formula:

Allow one gallon of water for each plant.

Add to this 2 cups of cow manure,  
 $\frac{1}{2}$  cup complete commercial fertilizer or plant food,

$\frac{1}{4}$  cup iron sulphate (ferrous).

Mix thoroughly with the water and allow to stand for a few hours; pour one gallon of this mixture into the hole. When absorbed, fill the hole with water and later replace the soil. Should any of the bushes show symptoms of chlorosis, yellowing of the leaves, repeat the feeding at least twice.

Rose growing for the past sixteen years has been my very happy experience. We have been told that happiness is the only true measure of success. If that is true, I have been successful with my roses.

## GREETINGS TO NEW ROSE GROWERS

By CLAIR ROBINSON

TO THE new home owner and to the folks that have been unable to try their hand at rose culture until this spring, may I wish you luck, lots of fun, and the opportunity to meet and enjoy the company of other rose people. In some respects nature is a hard taskmaker but to the beginner she is kind. Don't be alarmed by the number of ways and means of growing roses that you hear of and think it would be too difficult to try. You will be amazed at your own results. I think the reason for so many different methods of growing roses is the fact so many people love them more than any other flower. There must be at least fifty different methods and all of them good, and here I am trying to add one more.

Select a spot of ground (back yard

is best) that will get at least six hours sun (morning sun is best), that will not have any root interference from trees or large shrubs and not too close to the foundation of a building. An open area is best for the beginner. Later you will learn to combine the polyanthas and floribundas with other material in mixed beds. If your soil is of the yellow clay kind and sticks to the shovel like the very dickens it will nearly break your back to dig the bed but you will know for sure that if you add cow manure, water properly and provide good drainage you will be able to grow fine big roses. Roses will not stand wet feet so if your soil is clay of any kind, better dig the bed at least two and one-half feet deep and put in eight inches of coarse gravel in the bot-



tom. Add peatmoss, compost if you have it, and bonemeal to the soil you have dug out of the bed—never add fresh manure. Refill the hole, making the soil good and solid and adding water as you fill. You should have enough soil to raise the bed a few inches above the surrounding ground. This makes a better looking bed and helps drainage.

If at all possible make your selections from local dealers. They know how to keep roses in good condition until you buy them. They will have colored pictures of the different varieties for your choice and trained people to help with your selections. Have your dealer trim your roses for planting before you take them home. Your roses will be well wrapped but if it is not possible to plant in a day or two, plunge the bundle in the laundry tub and cover with water. This is a good practice anyway. Don't leave in water over a couple of days. If it is impossible to plant for a week or more, dig a trench deep enough to bury the bundle, water and cover them with dirt.

In case your roses were not trimmed wait until you are ready to plant before opening the bundle. Keeping it out of sun and wind, hold the rose in your left hand and with pruning shears cut off any broken or badly bruised roots or any root that is much longer than the rest. Now examine the graft or the swollen part of the stem that joins the roots to the branches. In planting this must be just under the level of the ground. I hope you were lucky enough to get a good heavy top, as that means you are bound to have a good root system. If your rose is a hybrid tea, remove all but three good sturdy canes; if a floribunda or polyantha leave five or six. This sounds like funny business, doesn't it, to spend good money for a fine big rose bush and then throw half

of it away, but you better do it because it will insure a better growth. In cutting out any canes, be sure to cut close to the main stem so as not to leave any stubs.

Dig as many holes as you need, fill with water and when the water has soaked away, straighten out the roots in all directions and put the plant in the hole. Fill in around the roots and with the hands pack the soil firmly as you add soil. It is important to make the soil good and firm around the roots and do take time to untangle the roots so each root lays by itself. After you have filled in to the top of the hole, making sure the graft is below the surface of the ground, remove the nozzle on the hose, turn the force down to pencil size and force the end of the hose down in the hole as far as possible, letting water run until it comes to the top of the ground. Fill in to ground level with dry soil and let stand for two days. By this time the soil should be dry enough to allow you to trample the ground firmly around each rose bush. Now, from another part of the yard bring in enough soil to mound each bush to a height of eight inches. Trim the stems just above this mound.

If the weather is dry and warm irrigate the entire bed by removing the nozzle, turning force down to pencil size and allow water to soak deep in the soil. Repeat irrigation each week. If the weather is favorable by the end of the third week remove a little soil from the top of the mound, and you may see growth starting. When this happens, take half the dirt away to another part of the yard. In a few days remove the rest of the mound, keeping in mind that the graft should be just under the soil level. Soon your rose bush will be pretty well leaved out. Now add some cow manure to the soil. Keep away from canes and roots as much as possible. Soak the



bed good and deep. In three weeks add two tablespoons of any good 5-10-5 commercial fertilizer to each bush by making a trench two inches deep in a circle and adding the fertilizer. Then cover with soil and water well.

Irrigate your bed every ten days from now on, and really soak it. After irrigation and the soil has dried on top, cultivate, using some hand tool and don't disturb the roots.

If you want to cut some blooms, cut the stem down to the first branch with five leaves on it. If you leave some blooms on the bush, cut the dried and faded flowers the same way.

Better watch out for aphids along the stems of new growth. This green house will pile up in a hurry. Use a dry dusting powder or a liquid spray to control them.

Create a mulch by adding peat-moss with some cow manure mixed with it to the soil. A mulch is pretty important in hot weather to keep the roots cool and make cultivation easier.

Mildrew may show up in early fall and if it does, dust your bushes with dusting sulphur. You may be careless here and let plenty fall on the ground around the bushes and cultivate it into the soil. This helps to correct the excess alkalinity naturally in our soil.

Keep your roses blooming as late in the fall as frost will allow. Do this by using a small amount of fertilizer now and then and careful watering, and you will enjoy a big crop of blooms from each plant. Plants are bred to give you top performance. When you feel in your bones that a good killing frost might hit in a few weeks, cut down on your watering. This will cause the wood to harden and lessen damage to canes. The first part of December, clean up every fallen leaf and branch, and carry

away. Add some more bone meal, bring back some more fresh soil and mound each bush to a height of eight inches, cut back the stems just above this mound and really soak the bed. Any plant well soaked will stand freezing much safer than a dry one. After Christmas, cut the branches off your Christmas tree (your neighbors' too, if they don't grow roses) and cover your rose bed with these branches. This will keep the frost in the ground that we hope is already there.

Should the winter be a dry one, irrigate once a month. Forget the mounds of dirt and evergreen branches until the last of March or first of April then take away branches and with the fingers carefully remove the dirt. You will find new growth has started and is easily broken. The hose as used for irrigation will help with this job, too. Carry the dirt away. As I read this, it makes me wonder if the reader will think I want him to carry dirt back and forth all summer, but I haven't figured out how else to do this job and keep the soil from piling up around the roses and some day be so deep it will strangle the rose.

Now add some more cow manure and later more commercial fertilizer. You can fertilize often if you don't use too much at one time. Roses take plenty of water and that leaches away the fertilizer.

This just about does it. If you have a neighbor or friend that grows roses by a different method, try his method, too. The main thing is to get started with a few roses and learn to enjoy the fun so many people get out of the job. Join a garden club, read some books on roses, enter some blooms in the local rose show, visit the Look and Learn Garden Tours and make rose growing a pleasant hobby. Good luck.



## ONE MAN'S OPINION OF WINTER PROTECTION OF ROSES

By ROY T. LITTLEJOHN

**W**HEN the question of winter protection for roses is asked of a group of rosarians, one usually gets as many different answers as there are rosarians. The same is true of watering, feeding and pruning.

It seems when one decides to adopt the hobby of rose growing, he at once discards the good advice of the nurseryman from whom he purchased his roses and decides he will find a better method. I, too, had the same urge.

At one of the first meetings of the Denver Rose Society, we were privileged to have as a speaker, one of the prominent nurserymen of Denver. Among the many good things he told us was, how he made a practice of planting the "bud union" two to three inches below the surface of the ground, then not bother too much about "winter protection." To me this was "just one man's opinion." I was sure he was all wrong. I planted my roses never over one inch over the "bud union" and preferably level with the ground surface, being convinced that I was right. Well, I tried almost all methods of winter protection, covering them with manure, leaves, corn stalks, hilling them eight to ten inches with soil, etc. My winter loss ranged from ten percent

to over fifty percent.

For the last two years I have given them no winter protection, other than to see to it that the ground does not dry out. To my great surprise my mortality rate has dropped to about two percent.

When examining the "bud unions" I found that they were a little over two inches below the ground level. This had come about by adding peatmoss as a summer mulch, which combined with the soil had raised the level two inches, exactly as the "aforementioned" nurseryman had recommended.

In my rose beds the peatmoss acts as an insulation against the freezing and thawing, so characteristic of our Colorado winters, and which I feel is responsible for most of the "winter kill" of roses.

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## A DENVER ROSE GARDEN

By S. R. DEBOER

THE next major exhibit to go into the Denver Botanic Garden will be a Rose Garden. Several other exhibits, such as Lilacs and Crabapples, were planted last spring and have come through the winter in good condition. It has seemed to the executive committee of the Botanical Gardens Foundation that a good sized rose garden would do more to create interest than anything else and for this reason this project was given priority by the Foundation and was approved by Mr. David Abbott for the city.

Beds are now being prepared and donations for roses are coming in fast. Lou Appeldorn, President of the Denver Rose Society, has appointed a committee to work with the committees of the Foundation and the Forestry and Horticulture Association. Soil preparations were discussed at length and beds are now being prepared.

Mr. Maurice Marshall, chairman of this committee, and Mr. Scott Wilmore are taking the most active part in securing plant donations for the garden. The response from the major growers both on the Pacific coast and in the east has been very strong. Thus far nearly 2000 roses have been promised and other donations are still coming in.

The first part of the rose garden to be put in will contain 48 beds of 45 plants each and a central ribbon planting of approximately 1000 Floribunda varieties. There are still opportunities for donations by private rose lovers. One bed of 40 to 45 roses makes a unit which can be planted and credited to the donor.

The garden is located on the west side of the Museum building and the lower level of this area is being

worked over for it. Paths will be of grass and the whole exhibit will be such that it can be viewed from above in front of the building as well as from the upstairs rooms of the building. It will make a beautiful foreground for the famous lake and mountain view at this point.

Eventually it is hoped to more than double the number of Rose plants in the garden. There will also be a collection of Climbing Roses. The Climbing Roses will be supported by a trellis placed between a number of model backyard gardens. Seven of these background garden designs can be located on the west side of the Rose garden. It is intended to make a display which will demonstrate to homeowners attractive arrangements of backyards. The little gardens merge into each other under the trellises of the climbing roses. The model backyard gardens are reserved for another project. For this year the rose planting will be the major project.

On the south side of the Museum building a Pinetum will be arranged with a large number of varieties of evergreens. Ground work has been started on this plan and planting will be done as soon as the grading work has been completed.

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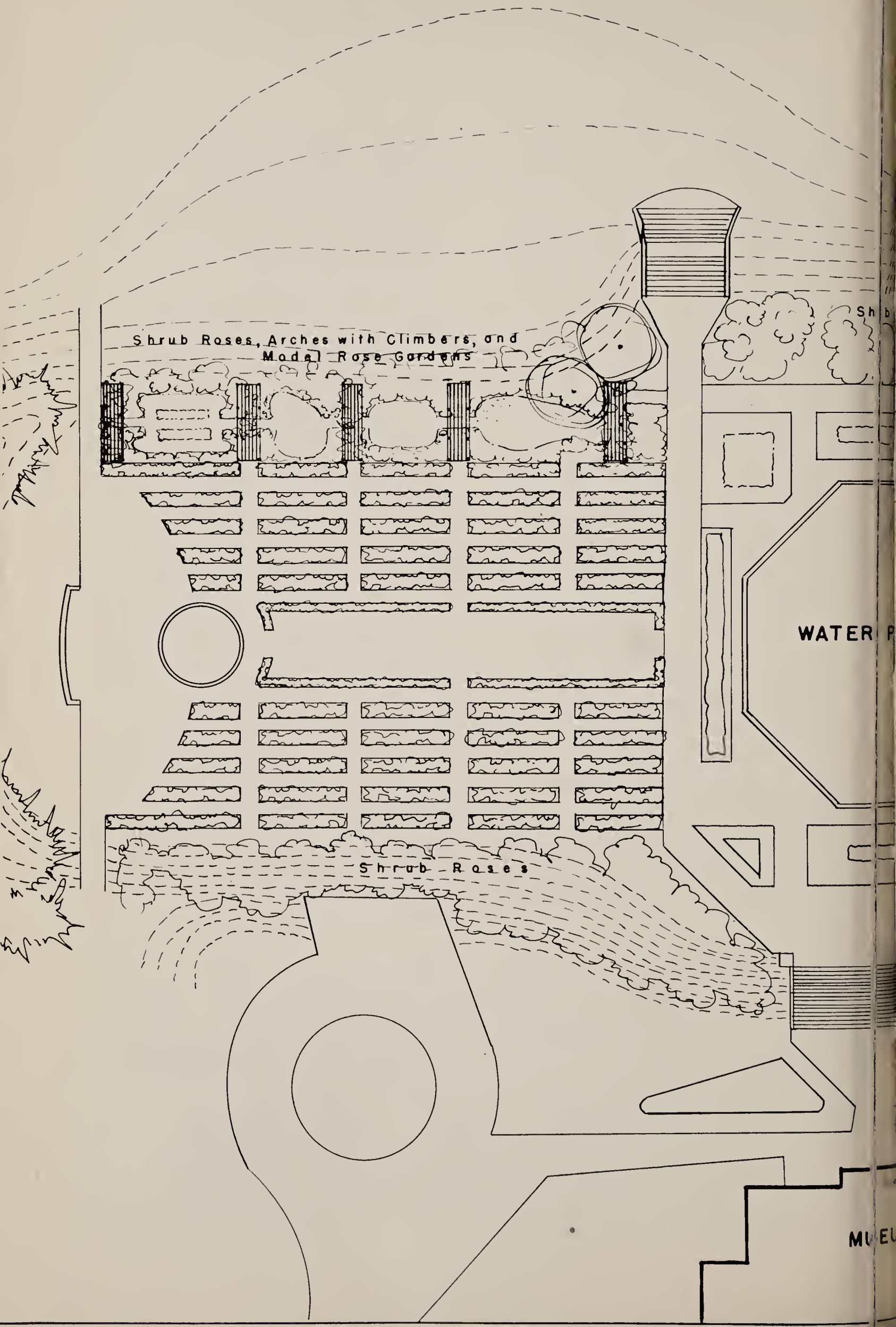
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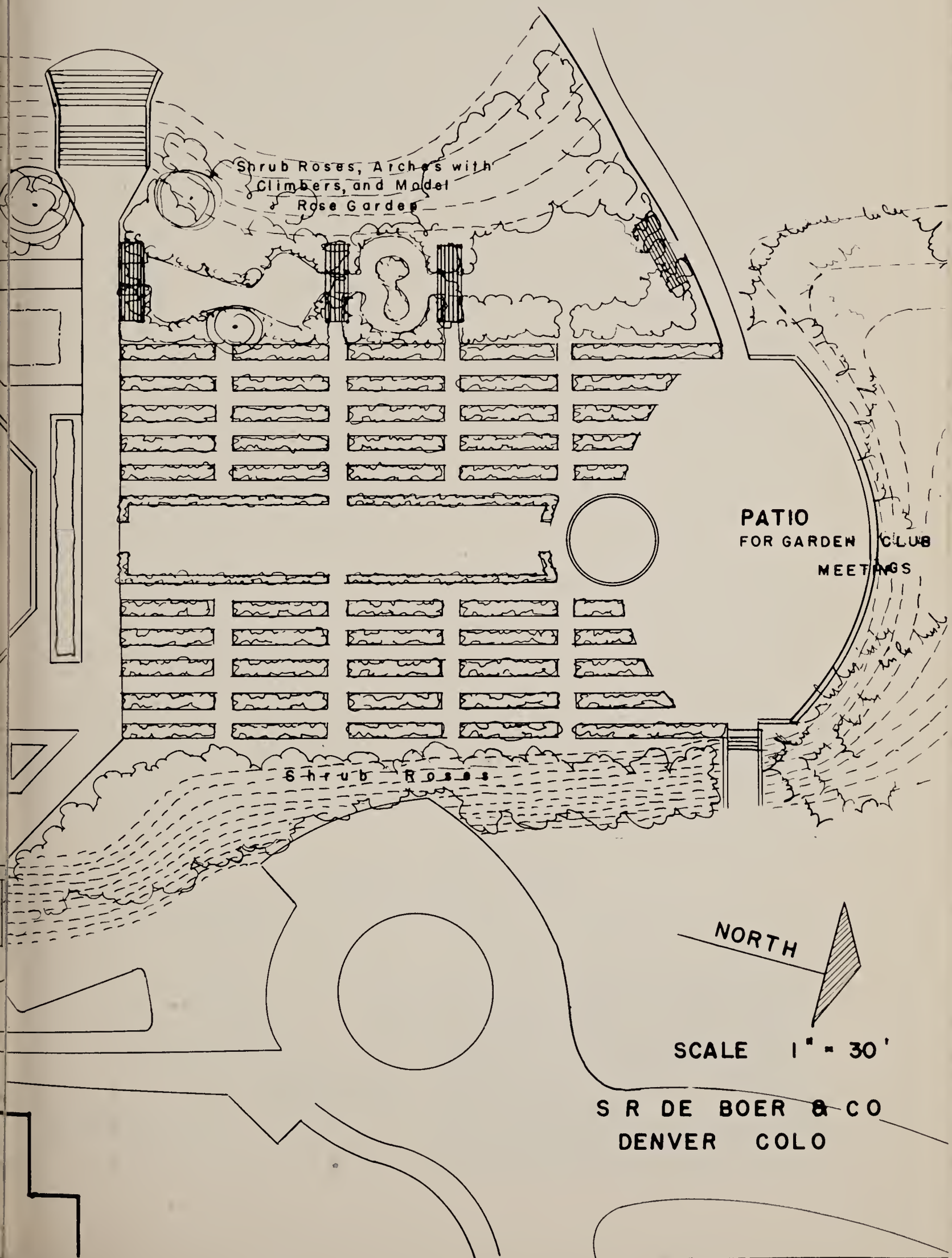
# DENVER BOTANIC





# GARDEN

## SE - GARDEN - SECTION





## PLANT ROSES EARLY

By A. E. ALBERA

**R**OSES planted early in the spring usually make satisfactory growth and bloom, while those planted after spring is well advanced are usually a disappointment. In order to understand why this is true certain fairly well established factors must be considered.

First of all, a commercial rose is a transplant. It has been estimated it takes from 3 to 4 weeks for roots of a transplanted rose to make contact with the soil and bring up moisture into the plant, feebly at first and then gradually increasing.

A plant has two parts, its root and top, and that part of the plant will grow where temperature is most favorable. Bottom heat in the soil will encourage root growth while the aerial part stands still. Warm air will cause top growth even though roots are not yet established.

A rose plant out of the ground that loses its water content below a certain level is greatly devitalized. A large percentage of the sieve tubes through which the fluids move are constricted or closed. Desiccation of plant tissue can occur in a great many ways: harvested when ground is too dry; roots, tops or both not well protected fairly resistant to powdery mildew in winter storage; temperature too

high or too low in storage; loss of moisture in shipping; delay in planting and probably in many other ways.

If plants are not too dry when received they may be helped by soaking or burying bodily for a few days, particularly if they are received and planted early in the season. But in late planting we are dealing with an altogether different cause of dryness.

When a rose is received from the nursery it contains a certain amount of water. If it is planted late, after the weather has warmed up more or less permanently, tops will immediately start to grow; in fact, they often grow in storage, or in the packages in which they are received. These new shoots are composed chiefly of water, and the only place from which they can draw water at this time is from the plant itself. It will lose a proportion of its already meager supply of liquid through premature growth of its top, before roots are able to replenish the supply. Not only is the moisture level lowered, but new shoots draw heavily on the plant's food supply which is stored in the roots and top. After an apparently vigorous start in the garden the newly planted rose just sits there. It becomes a dry and hardened plant, robbed of a portion of its stored food,

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hat will not function properly nor progress normally.

A late planted, strong growing variety that is thoroughly dormant, often gains enough strength through the growing season to build up sufficient resistance to go through the winter. Thereafter it will do fairly well, but in cold climates it often takes 3 years of favorable growing conditions to build the weakened plant back to its status as a maiden.

Unfortunately, a rose planted too late in the season does not die entirely, but leads a rather dismal life the first year and produces a few blooms of inferior quality. Because hardiness is closely related to how well the root system is established, winter often puts the finishing touches on it, thus ending forever the vision of gathering arm loads of beautiful roses like those pictures in the catalogs.

The foregoing points out the importance of buying thoroughly dormant fresh stock and planting early—the earlier the better. It is the belief of many that roses grow a new set of fibrous feeder roots each year and that they are formed in late winter and early spring. It is nature's way of preparing the plant for top growth later when the air warms up.

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## CONSERVATION IN COLORADO

It is encouraging to see the recent interest in conservation being shown by our educational institutions. Recently there has been organized on the campus of A & M College at Fort Collins a Colorado Conservation Council who are especially encouraging the observance of conservation week which has been set aside by the Governor's proclamation as April 19 to 25.

The purpose of this is to emphasize during a special week the need for conservation of the natural resources in all its aspects in Colorado and the nation. Attention is called to the need for conservation of our soil, minerals, water, wildlife, timber, rangeland and recreational areas.

This is a movement which should be encouraged by everyone.

## COLUMBINES FOR COLORADO

The Columbine Garden Club of Idaho Springs is living up to their name by encouraging the reseeding of columbines in suitable places over this state and other states.

They have secured 6 pounds of native columbine seed and have packaged it to sell for 10c and 25c. The profit, if any, from these sales goes equally to the local health drives and to improving their cemetery; both worthy things.

Here is a case of killing three good birds with one stone.





## SIMPLE FACTS ABOUT FERTILIZING ROSES

By P. B. SMITH

**F**ERTILIZING roses with both organic and chemical fertilizers really pays off and is quite simple. In addition to the use of well-rotted manure, there are only two minerals which generally we need to consider in the Denver area for roses.

The two minerals required to produce plant growth in addition to those that nature has supplied in our soils are nitrogen and phosphorous. Nitrogen produces top growth and dark-colored leaves and flowers. The phosphorous principally produces better roots, particularly the fine-hair rootlets, as well as making for more blossoms. I would suggest that you use treble superphosphate (O-43-O) which can be purchased from any of the supply houses and is much cheaper in its sources of phosphorous than the mixed fertilizers per pound of plant food. Our soils in Denver are low in this particular element, and it needs to be supplied in large quantities.

One thing to remember about phosphate is that it does not move in the soil, so if it's put on the surface it will not accomplish the results that it would if it were put in deeper. The best time to apply phosphate is at the time of planting roses. Dig the hole at least five inches deeper than the length of the roots, put in the bottom of the hole some barnyard manure or peatmoss and a handful of phosphate. The organic acids work on the commercial fertilizer and make the phosphorous available to the root system. Put at least an inch of top soil on top of the fertilizer in the bottom of the hole so that the roots do not come into direct contact. Fill in the hole in the regular manner

after spreading the rose roots, and put two rings of fertilizer at the outer edge of the hole away from contact with the rose roots four or five inches from the bottom of the hole, and three or four inches from the top. This, then gives you three layers of available phosphorous which furnish a reservoir of plant food badly needed for the proper growth of the roses.

If your roses are already planted the easiest thing is to sharpen a broom handle or use a steel rod and make a couple of holes at least eight inches from the center of the rose plant and at least a foot deep. Pour into this hole the granules of the treble superphosphate which preferably should be done early in the season before the roses actually start to grow. Roses need lots of water, and the plant can only take up the plant food in a liquid fashion. So irrigate at least once a week thoroughly.

The second important element needed is nitrogen. This can be purchased in the form of ammonium sulphate (one form is sold as "Ford fertilizer"), and it contains 20.5 per cent nitrogen. Put a tablespoonful of the chemical away from the main stalk but in a ring around each plant. When you soak the rosebed, this material dissolves and is readily available deep down in the soil as it moves quite readily. Do this about every three or four weeks during the season, and you will be amazed at the dark color of foliage and the good strong stems and buds.

Don't forget good organic matter as it helps to make available the commercial minerals; after the foliage is



well started, a good coating of well-rotted cow manure is excellent and certainly will stimulate the growth when it is well watered in. It should be stirred into the top soil and helps to prevent the roses from drying out. Filling in around the roses in the fall with compost is also a good stunt, and when it is spread out in the spring, it helps supply some of the needed organic matter.

There has been a lot of interest in foliar feeding of roses and flowers recently, but don't depend upon this method to supply all the fertilizer. It is possible to stimulate the plant quickly and effectively through foliar feeding. It particularly is helpful for the minor element plant food that is required such as iron, manganese, magnesium, copper, etc. You can also supply nitrogen and phosphorous in solutions sprayed on the foliage, but it would take 20 to 60 sprayings

a season to supply the amount of these two elements that is required by the plant. So the thing to bear in mind is that the main source of plant food must be applied in the soil.

Off-color leaves are not always traced to shortage of one of the fertilizer constituents. It may be caused by insects. Some people like to add plant food to the insecticide solutions. This is a good idea if they are compatible, which is something you should investigate.

Many people are afraid to use commercial fertilizer on their roses, but the writer has been doing it in the fashion described since 1938 on roses now growing in his yard in Denver, and some of them have been moved four or five times. Feed the roses sparingly and don't over-do it. Light amounts are much better than heavy amounts as they will not burn the roses up.



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## ROSES IN EUROPE

By A. E. ALBERA

THE most enjoyable part of our recent European trip was our visits to the International Test Gardens. We did see a certain amount of statuary, old ruins and ancient art, to be sure, but our quest of the rose took us off the beaten path that tourists usually tread. It also took us away from downtown and out to the parks.

The first garden we visited was the famous Bagatell, which is a park within a park, located on the outskirts of Paris. We next went to Lyons, the rose Capital of Europe, where the French National Test Garden is located. In the beautiful Parc Tete D'or the test for The Most Beautiful Rose of France is held.

From Lyons we went to Tassin, where the old home of the Meilland family is located. We were disappointed in learning Francis Meilland was on the southern coast of France at the time, but we were shown around the estate. Peace roses were growing with canes the size of your wrist.

Our next stop was the International Test Garden in Geneva. Roses grow to perfection there and we learned French hybridizers would win at Geneva and Lyons more than all the rest of the test gardens put together. We also saw a great many rose plantings throughout Switzerland.

We then swung down to Venice, over to Florence and then to the Italian and French Riviera. We saw roses blooming in Venice and Florence, but they were not of top quality.

We finally caught up with Francis Meilland at Cap d' Antibes. This was really the highlight of our trip. His hybridizing plant is a million dollar industry, and although he is a very busy man, he very graciously

gave us two hours of his time. Between interruptions for long distance telephone calls to all parts of the world, he took us through a great many greenhouses and explained in detail the process of hybridizing from taking the pollen to growing the bud wood.

Only a very small percentage of the new French roses reach the United States. In France the temperature seldom goes lower than 14 degrees above zero. They, therefore, have great many more varieties to pick from, and some of the most beautiful roses grown in certain parts of France are never seen here.

In visiting the various gardens, and other plantings, certain cultural methods became obvious. Most of the test gardens have a great deal in common. Without exception they are laid out for landscape beauty as well as for testing and are invariably located on high ground. At Bagatell and Geneva it was necessary to walk up ten or twelve steps from the park proper to get to the rose gardens. They all have a long shallow pool in the center which adds to the beauty of the surroundings, but the primary purpose I believe, is to furnish a certain amount of humidity during dry spells.

Another interesting fact was the method of planting. Not only in the test gardens, but wherever we saw roses planted in Europe, they were always planted with the bud union very high out of the ground; in fact the point at which the root system bifurcates was at the ground level the four to six inches of shank and bud were above. In other words merely the roots below the bed proper then loose soil was mounded up over the shank and the bud union was left exposed. One might draw the con



clusion this method is used because they have mild winters, but in a recent poll of the members of the American Rose Society disclosed the depth of planting has little or nothing to do with winter hardiness.

The Europeans we talked to believe a mulch is better than nothing at all, but they do not think it takes the place of cultivation. Francis Meiland has installed hydroponic culture throughout his greenhouses, except where the bud wood is raised. He has a laboratory where the nutrient solution is prepared and roses are planted in a sterile medium (coarse sand, which he calls gravel). He told me since installing this system production or plant growth, has been speeded up 100 per cent. He also told me the fertilizer formula was no secret, but that the speeded up healthy growth was due to excellent root aeration, which seems to me to be a strong argument in favor of cultivation.

On the southern coast of France, around Nice and Grasse, winters are very mild. Their climate is similar to some parts of California. Roses make cumulative growth from year to year, and because of this fact climbers are enormous and bloom like the pictures in the catalogs. Winter does not devitalize Hybrid Teas. Upon my return to Colorado I realized it takes a stout heart to keep on growing roses in the Rocky Mountain Region.

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# DISEASE AND INSECT CONTROL

By VELLA HOOD CONRAD

**T**HERE are a few general measures that will be effective in solving most of the disease and insect problems of roses, in this area. All that is needed is a good duster, a sprayer, and a few good insecticides and fungicides.

There are many good insecticide-fungicide combinations on the market. Effective compounds contain a mixture of the following ingredients in varying amounts: sulphur, copper or ferbam, lindane, DDT or methoxychlor, and rotenone or aramite. Many combinations of these are sold under trade names and are very good. Be sure to follow instructions carefully. Nicotine sulfate; ratio—1 teaspoon per gallon of water used with a spreader (and drest is a good one), will control aphids. Sulphur will control mildew, and with the addition of fermate and rotenone will serve as an all purpose dust. You cannot use this when the temperature is above 80 to 85 or you will burn foliage.

Spider mites are a problem in hot weather, at a time when sulphur is risky business. Syringing the bushes with plain water from the hose controls mites.

Keep your eyes open, and use preventive measures. Cleanliness is a must in a rose garden. The best way

I have found to control the snow beetle that pierces the rose buds is to get out early and knock into a can of water with a little oil in it. Earwigs presented a problem here last year. These are pesky, but can be controlled with lindane spray or dust.

Generally speaking, we have many less of the serious insects, such as the Japanese beetle, and we have less of the devastating black spot infestations. I have seen some black spot but this can be controlled. For these more serious problems consult your consulting rosarians, the county agent or Colorado Forestry and Horticulture Association.

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# WHAT MAKES A GOOD SHOW

By LLOYD WOODWARD

A GOOD show reflects the enthusiasm, the talent, the patience and the taste of the members of the sponsoring society and it is a credit to any community. When you see a good rose show, you can bet your best spray-gun that a group of folks have done a lot of work in and outside their gardens. There are many factors that must be considered in the execution of a really beautiful and delightful show.

At the better rose shows we expect quality and variety. This is understandable. The three-ring circus always provides more excitement and diversification than the one ring show. We expect to see the whole family of roses, Hybrid Teas, Floribundas, Climbers, and all the rest, both the new and the old. We expect to see arrangements suitable for various occasions.

Many rose growers attend the shows to learn about new varieties and to make selections that can be

added to their gardens during the next planting season. In addition to being delightful entertainment, the rose show should be educational.

The most important factor of all in the success of a show is the quality of the roses entered. A first-class rose has no substitute. The purpose of a show is to assemble in competition—at a designated time—the best roses that can be found in the gardens of those eligible to participate. A rose found wilted and drooping, among the aristocrats of a show, is more annoying than a social blunder. Its presence distracts from the charm of the most beautiful specimens.

Planning for the production of high quality roses must start in the garden well in advance of the show. There are really five major steps in this process. The roses are grown, cut, groomed and transported to the showroom. That is another important division: Showing roses.

## SHOWING ROSES

By CHARLES A. VOLLICK

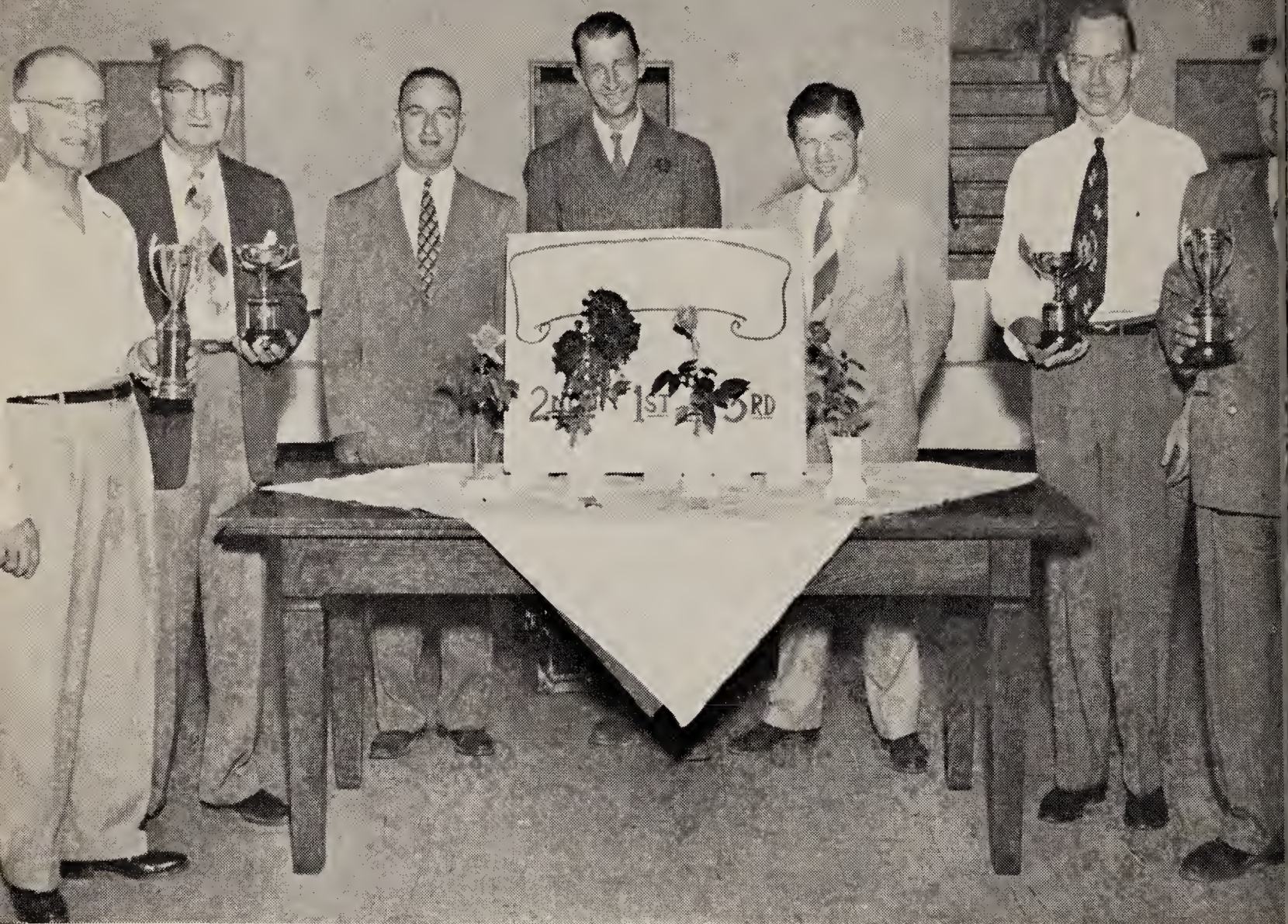
Chairman of Denver Rose Show Committee, 1954

SHOWING roses is only one of many reasons for growing this most popular of flowers, but competition in a rose show provides the greatest satisfaction and pleasure to many rose growers. Winning a blue ribbon or a trophy represents the crowning achievement after months of systematic planning and work.

You do not need to have 300 or 500 rose bushes in order to compete in a rose show. You may have the "Queen of the Show" if you enter only a few roses. If the rose looks good to you, it probably will look good to the judges.

Many of the newer varieties produce perfect bloom more often, but a rose does not need to be an AARS selection in order to be a winner at the show. The American Rose Society has compiled a list of varieties that won top honors at the nation's rose shows in 1952. The list includes best roses in the show, Queen of the Show and section winners in the larger shows. Peace and Crimson Glory won the largest number of awards, but included among the winners are such old time favorites as Etoile de Hollande, K. A. Victoria, and Christopher Stone.





*Fall Show 1951. Left to right, Ray Turnure, A. E. Albera, Herb Gundell, Frank Richards, Bill Gunesch, Jack Faust, E. J. Maynard.*

Records of winners of first, second, and third best roses in the show are available for the shows held by the Denver Rose Society since 1949. Peace was allowed to compete for these awards at the shows in 1949 and 1951. A special award was established for Peace in 1952 and it has not competed with the other roses since that time. Special awards are now given at the Denver Rose Show for best hybrid tea, best group of three hybrid tea roses, second best hybrid tea, third best hybrid tea, best Peace rose, best floribunda, and best arrangement. Varieties that have won major awards in the Denver shows are listed in the following tabulation. Numbers following the variety name indicate the number of times

the rose has won a major award.

### Hybrid Tea Roses

Bravo (1)  
Charles Mallerin, Queen of Show (1)  
Charlotte Armstrong, Queen of Show (3)  
Chrysler Imperial (1)  
Fred Howard (1)  
Grande Duchesse Charlotte (2)  
Heart's Desire (1)  
Helen Traubel (1)  
Lowell Thomas (1)  
Mme. Henri Guillot (1)  
Mary Margaret McBride (1)  
Nocturne (2)  
Peace (3)  
Rex Anderson, Queen of Show (2)  
Rubaiyat, Queen of Show once, (2)  
Snowbird (1)



### Floribunda Roses

Else Poulsen (1)  
Fashion (1)  
Garnette (1)  
Permanent Wave (1)  
World's Fair (1)

Careful planning will increase your chances of winning at the show. Disbudding should be done two or three weeks before the show, so as not to leave scars. Fertilizing should be done regularly with a prepared plant food according to the directions on the package. The rose beds should be soaked thoroughly at least once each week, and should receive additional watering the week prior to the show. Spraying or dusting should be done regularly, but should be discontinued the week of the show because it may leave spots on the petals of roses that could be entered.

Many exhibitors start cutting their roses 7 to 10 days before the show. In my experience, however, the roses that won the blue ribbons were cut 1 to 3 days before the show. Other ribbons were won on roses that had been cut for a period up to 8 days. The blooms should be cut when the first one or two petals have started to unfurl. The stem should be approximately 12 inches long. Normally there should be two or three sets of leaves on the stem. There is a great deal of argument and discussion as to the time of day when roses should be cut. In my opinion, the time of day is unimportant, but the rose should be cut when it is at its proper stage.

After the roses are cut, all traces of spray should be removed from the leaves with a wet cloth, and they should be examined carefully to be sure there are no insects present. Thorns should be removed from the lower half of the stem in order to avoid damage to the leaves when placed in storage containers and to

provide additional surface for absorption of water. The bottom of the stem should be cut on a slant in order to provide a greater area for water intake, when they are stored. Roses should be labeled before storing. Although you may know the varieties in your garden, it may be difficult, if not impossible to distinguish between certain varieties after they have been stored in the refrigerator for several days.

There are several methods of storing roses. Various exhibitors have different methods, but it is generally agreed that roses should be hardened for at least 5 or 6 hours before a show.

One method consists of plunging the rose in cold tap water up to its neck, and storing in the refrigerator away from the unit. It is probably not wise to put roses directly into ice water, because the shock would be severe. I take my roses to the show in the same containers in which they were stored.

Storage in plastic bags is a method used by many exhibitors. Advocates of this method claim the roses can be safely stored for much longer periods of time with less change of color. As soon as the roses are cut, the stems are wrapped with tissue paper to prevent thorns from tearing the plastic, and the roses are then individually wrapped in freezer foil or plastic. The plastic is folded over on the sides and ends and sealed with freezer tape. Roses supply their own moisture and they should be wrapped as tightly as possible, without bruising the leaves or bloom, in order to reduce the air space. They are then labeled and stored in a refrigerator at 33° to 40° F. Five or six hours before the show, the roses are removed from the refrigerator, coverings are removed from the bottom half of the stems, and 1 to 1½ inches



is cut off the ends. They are placed in 3 or 4 inches of lukewarm water and returned to the refrigerator, with the blooms still covered, until the time of the show.

Entry tags and rose show schedules are furnished each individual who enters the show. The Denver Rose Show Schedule contains 123 classes which are grouped under 6 major divisions. The divisions are: Division A, which includes 52 classes for the most popular hybrid tea and floribunda roses, a class for Paul's Scarlet or Blaze climber, a class for a full-blown rose, and a class for an unnamed rose; Division B includes 28 classes of hybrid tea roses based on color; Division C is for polyantha and floribunda roses and includes 22 classes; Division D is for climbing roses; Division E is for arrangements and includes spe-

cial classes for men only and for children under 12.

A great deal of confusion and lost time can be avoided if the entry tags are prepared in advance. The section, class, variety name, and name and address of the exhibitor should be filled in on both portions of the tags. At the last show in 1953 there were 445 hybrid tea, floribunda and climbing rose entries, and there were 109 arrangements. Sixty-five Rose Society members participated. We would like to have an even larger number of entries in the 1954 shows and I am sure that everyone will find it much easier to prepare their entries before the show.

The motto of the Denver Rose Society is, "Let's Grow Roses for Fun." Showing roses can also be fun. If you enter the rose show, I hope you win.

## STANDARDS USED IN JUDGING ROSES

By CLYDE E. LEARNED

**I**N order to satisfactorily judge roses, it is necessary to have a standard measuring device. Without some standard it would be possible for a judge to express his or her individual preference for perfection in such items as size, length of stem, and color classification in a manner out of proportion to the other elements to be judged.

To serve as a guide and to avoid as much confusion as possible in judging and rating roses, the American Rose Society has established the following point system for the several elements on which it is believed a rose should be rated:

1—Form .....	25 %
2—Substance .....	20 %
3—Color .....	25 %
4—Stems and Foliage....	20 %
5—Size .....	10 %

A description of each of these elements follows:

### 1—Form—25 %

Defined as shape or external appearance. The beauty and attractiveness of the rose begins with its form. A rose may be as large as a peony but if it lacks symmetry or is out of proportion to stem and foliage, it is not considered a high-scoring rose. The flower form of the exhibit type rose when one-half to three-fourth open should have sufficient petals gracefully and symmetrically arranged in an attractive circular pattern and with a well-shaped high center. The American Rose Society recognizes five types of bud forms:

- 1—The slender or tapering bud, as Eclipse and First Love.
- 2—The pointed bud, as Charlotte Armstrong, Sutter Gold.
- 3—The ovoid bud, as Peace or Doctor.
- 4—The globular bud, as Radiance



5—The urn-shaped bud, as Talisman.

## 2—Substance—20%

This term is a rather elusive and indefinite property of a rose. Substance has been defined as the quantity and quality of component materials. To the ordinary rose grower this does not mean very much. However, various authorities appear to agree that in order to have good substance, one should look for the following characteristics:

- a. Thickness of petals. The petals may be thin and papery or thick and leathery. The latter indicates good substance.
- b. Firmness or crispness of petals. They should stand erect and not flop. If one exerts slight pressure on the petals, they snap back in place, indicating good substance. If they lazily come back, they have poor substance.
- c. Toughness of petals. Resistance to bruising or tearing.
- d. Keeping quality of rose. A rose that will stand up and not wilt has good substance.

Factors that influence substance are fertilization, watering, sunlight, humidity, temperature and storage. When one hardens roses by proper storage, one improves substance. Hardening at a cool temperature is a very desirable practice. However, long storage may result in loss of substance, particularly if picked too early and the rose does not open properly.

## 3—Color—25%

Some of the qualities of color to look for are brilliance and freshness. Is the rose full or is it bright? Clarity of color with no blemishes on the individual petals. Color of the same variety varies with regions, seasons, soils, fertilizing and weather conditions. High temperatures and intense

sunlight often cause fading of many varieties. Pure red colors should be free of bluish tinge.

## 4—Stems and Foliage—20%

Stem should be in proper proportion to the size of bloom. Weak necks are penalized. The stem should be reasonably straight and the leaves should be abundant, healthy and vigorous, and there should be no evidence of disease or insect injury. On some varieties the sharp points of the thorns should be cut off. When this is done, care should be exercised to not bruise the stem. Ordinarily from three to five points are deducted for missing foliage and ten to twelve points for disbudding.

## 5—Size—10%

Strange as it may seem to many people, size is the least important of the elements, as the average rose in good condition will be rated the full ten points. If the ratings are very close, it can normally be expected that the larger blooms will receive a slightly higher rating.

## General

In exhibiting roses it should be kept in mind that the rose is judged at the time the judge sees it, not how it was previously or how it will be. To have the rose in top condition at the time of judging is a matter of timing, usually based on experience. To avoid embarrassment and disqualification, be sure your roses are correctly named. It is well to keep in mind that some judges are high scorers while others are more conservative. The more experienced the judges, the better the results.

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## USING ROSES INDOORS

By SUE KELLY

I DIDN'T realize just what I was getting into when I said I'd write this article and now, I want to cry "HELP!! HELP!" I'm not an authority on flower arranging and so go to others for specific material such as design, scale, balance, focus, color, rhythm, and harmony! (I want to give credit to Miss Lula Morse for the line drawings shown with this article.) Did you know it took all of those items to make a pleasing and

size of each part of the arrangement to the position it is to occupy.

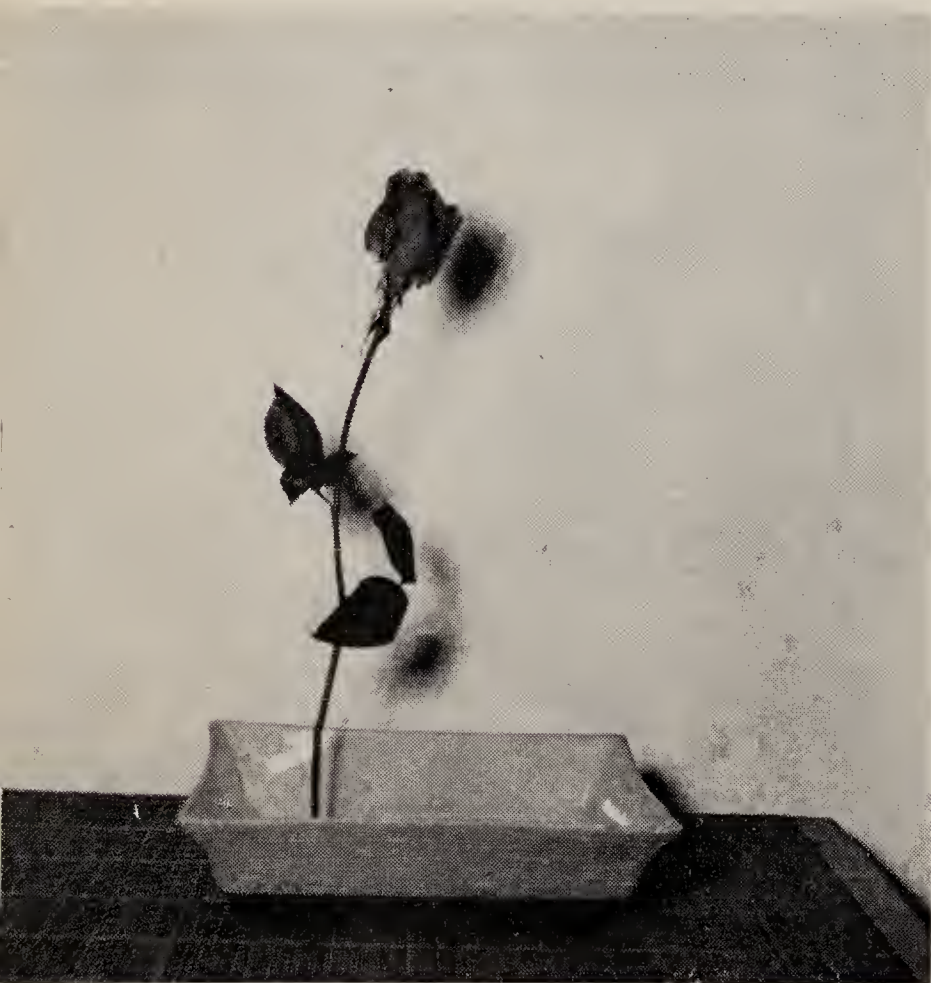
By BALANCE—each side has equal appeal—the arrangement is stable and you have the feeling of balance so that it is a permanent thing and not in danger of falling or slipping. Many things enter into balance—weight, intensity of color, coarseness of texture and distance from base or center. Sometimes figurines are used to balance the arrangement, placed to one side as part of the whole arrangement.

By HARMONY—everything fits together; flowers, container, foliage are all in tune, and you have a feeling of unity.

By FOCUS—each line of the arrangement leads your eye to the focal point which is usually placed just above the edge of the container or just breaking the rim.

By RHYTHM—everything about the arrangement has a line and flow of high and low spots, as in music—a regular repetition of material or groupings giving a feeling of fluidity which makes it distinctive.

Here (on opposite page) are more line designs which can be used for



successful arrangement? I'll try briefly to give the basic principles:

By DESIGN—we mean the plan you had when you went out into the garden to cut a few roses to use in your home, taking into consideration the container, place in your home and the foliage. The sketches on the other pages include the most commonly used of the standard and accepted designs in line arrangements.

By SCALE—the proportion of the







Another point to remember is—uneven numbers are better than even: that is, five roses are better than six, but if you have just two, that is all right. By using evergreens and other foliage, just three roses may be used to great advantage.

In nearly every hobby, there are a few things to remember which will become a habit and you will do them unconsciously. Here are a few to keep in mind:

*These five photos show the progressive stages in making a simple arrangement with roses.*

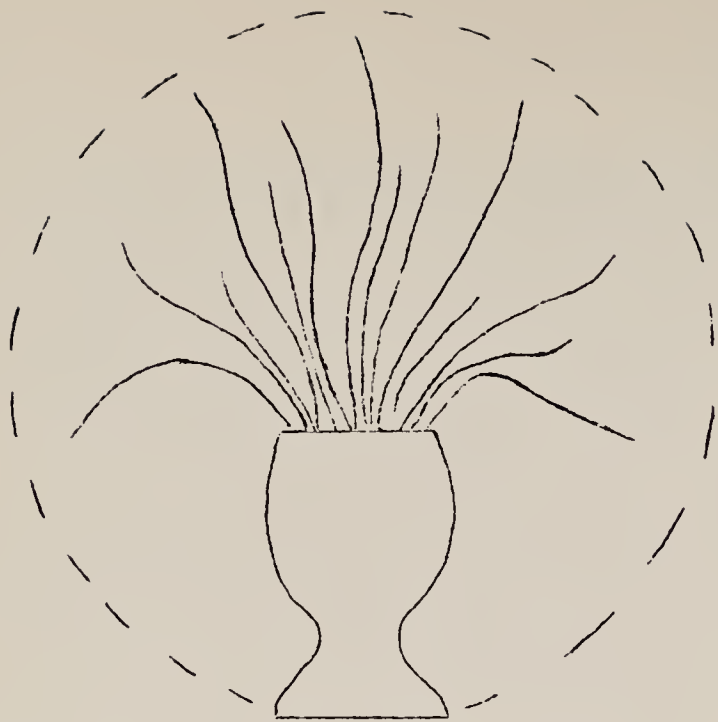
*Arrangements and photos by Sue Kelly.*



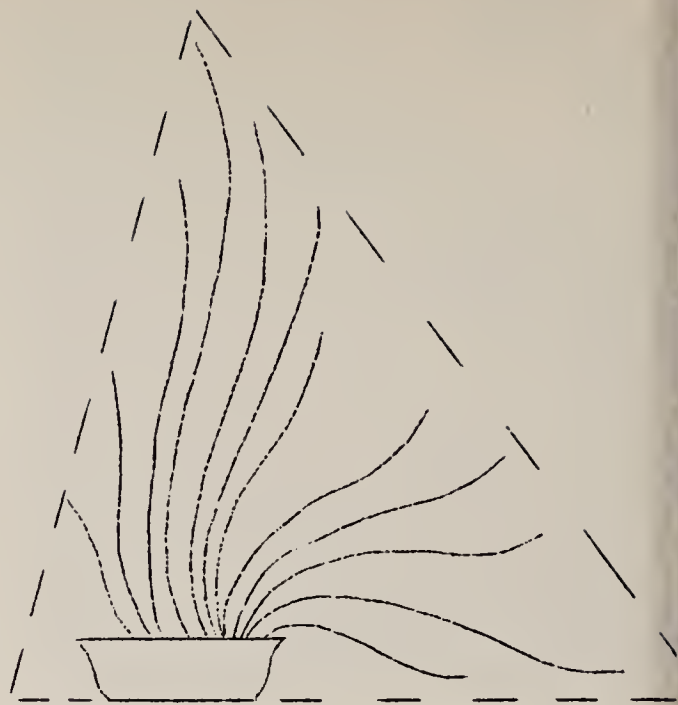
roses as well as other flowers in your garden. The continuous lines indicate the first flowers to be placed while the broken lines outside merely outline your design. In the tallest designs, the height is one and one-half times the widest part of the container, which doesn't mean you must measure it exactly. It does mean the line can be taller but never shorter than that measurement, so that your arrangement has balance. If you use a shallow container, the tallest line is one and one-half times the widest part of the container also.



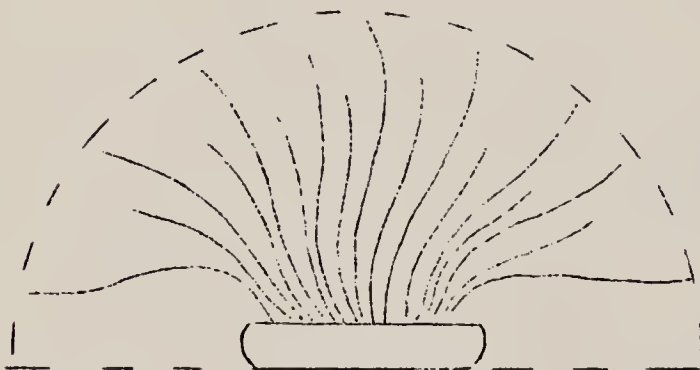




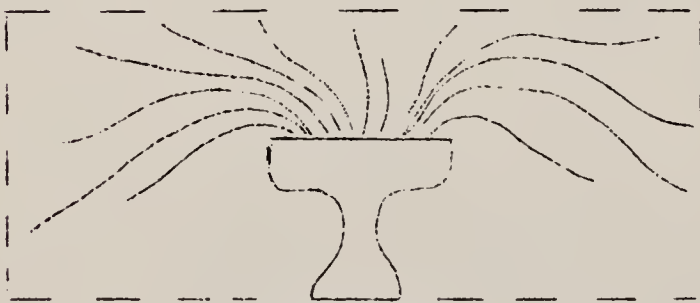
Circular



Scalene



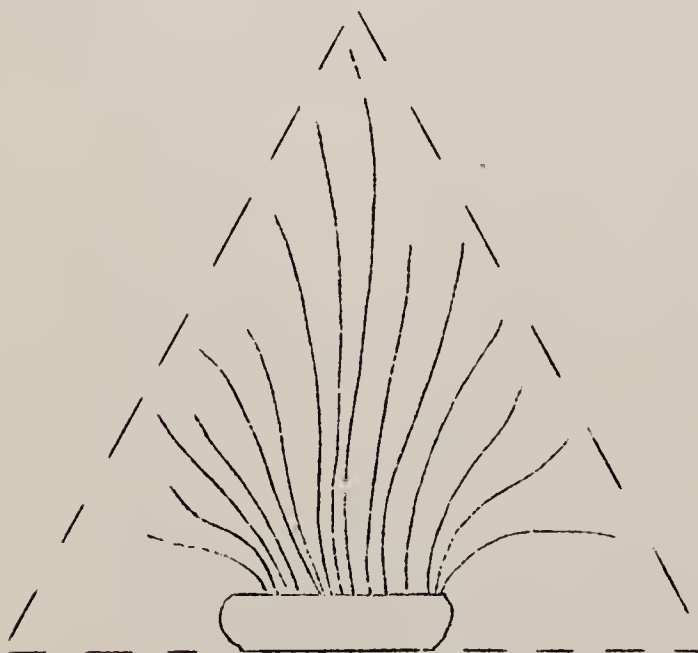
Radiating



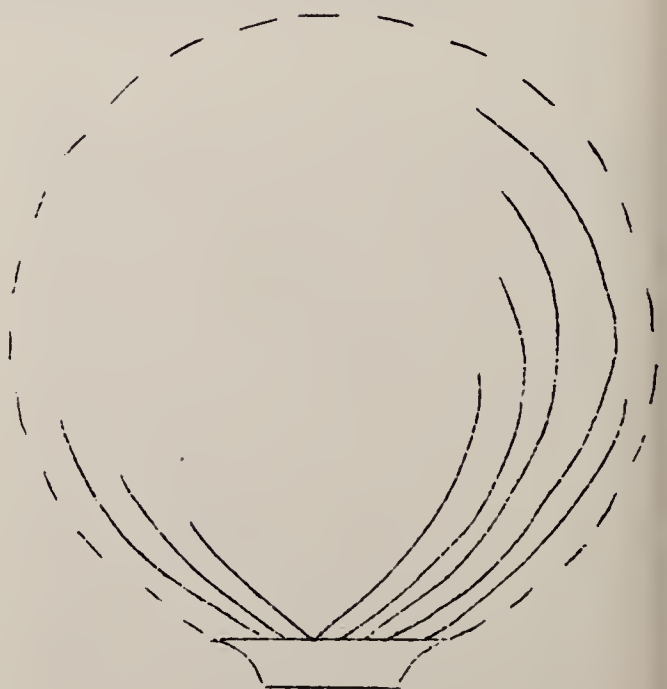
Horizontal



Vertical

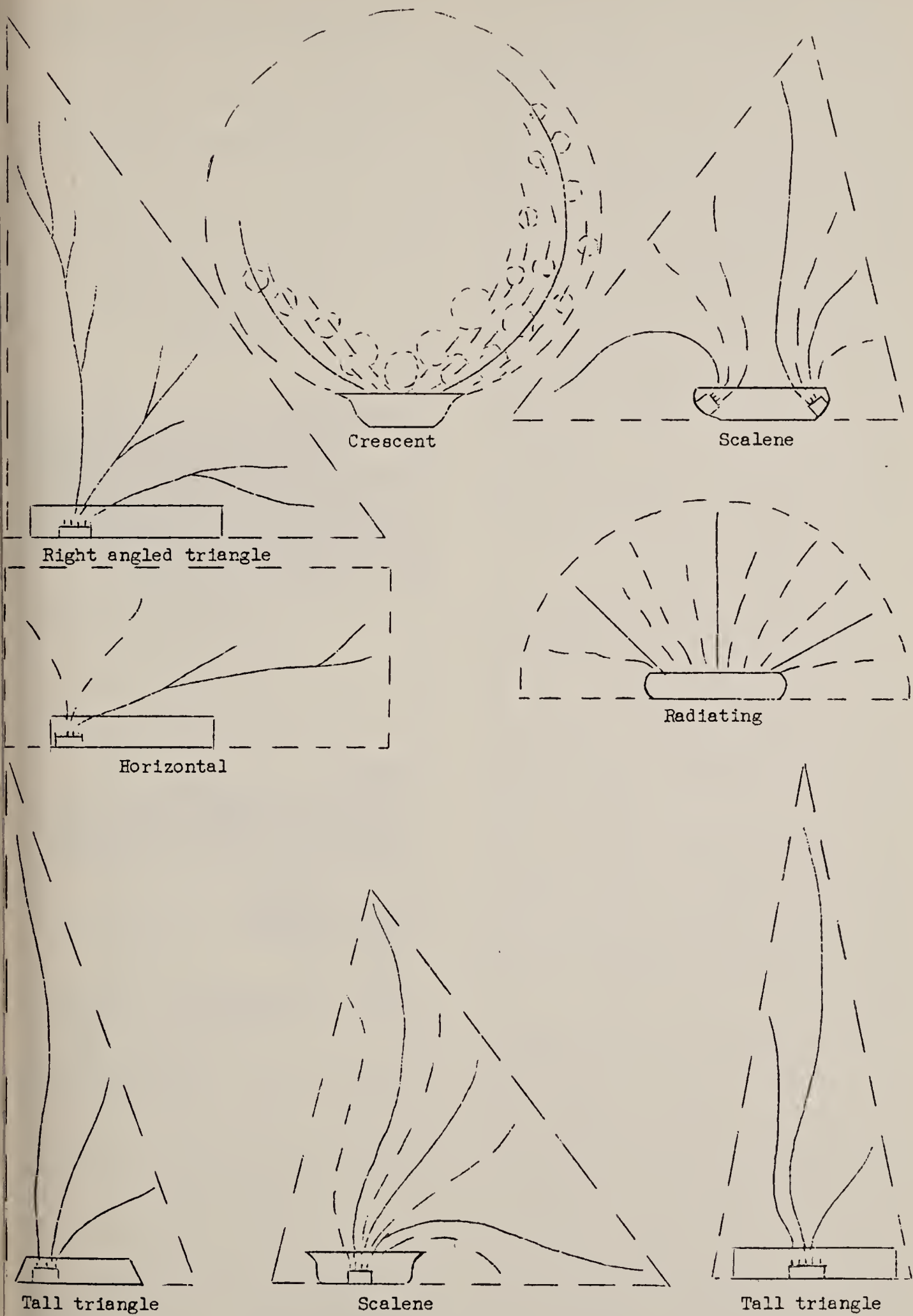


Equilateral Triangle



Crescent





Line drawings of standard acceptable forms of flower arrangements. By Lula R. Morse.



All pin holders (which should be securely anchored with floral clay or paraffin) must be covered and do not cross the stems in your arrangement where they can be seen. Small flowers or buds are used in the top and tip positions with partially opened flowers next and full blown blossoms as your focal point near the center-base of the arrangement. If your roses have many leaves trim them out—also, cut off thorns for easier handling. When you cut your material, preparatory to arranging it, cut the stems as nearly the right length the first time as possible (unequal lengths to create the illusion of depth), set them in position and then **LEAVE THEM ALONE**, and when you are done, **STOP**. Don't try to re-do the whole thing.

Some color combinations to use in rose arranging might possibly help. A monochromatic arrangement means all flowers and container are one color, using tints and tones of that one color for variation. Pale yellow Eclipse with brighter yellow Golden Scepter and russet toned Sunset Glory are a good example. Using pink Bountiful floribunda roses with Sansevieria leaves for the basis of your triangle and a rosette of Echeveria (hen and chicks) for the focal point in a square container is very effective.

Use your finished arrangements in the front hall, living room (coffee table, piano, occasional tables), diningroom (table, buffet), kitchen, bedrooms, bath—in fact, any room in the house will be livened by flowers.

Practice with all types of flowers until you can get them in the design you wish and then start experimenting, using different containers and your own individuality. Some types you'll love, others you won't. Do those which best express you and compliment your home.

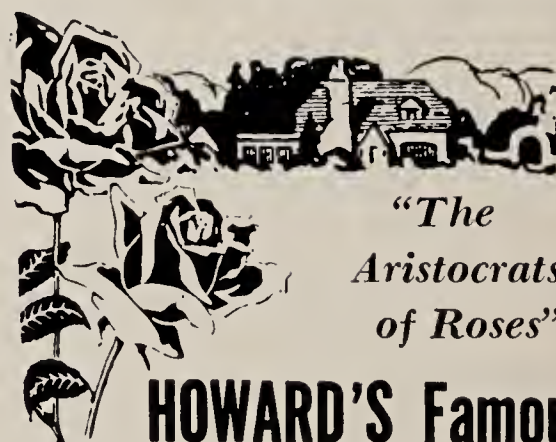
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# LET'S GET DOWN TO THE ROOT OF THE PROBLEM

By MORAS L. SHUBERT

**R**OSES do have beautiful flowers—if their roots are doing well! In this article about roots, the principles discussed apply to roses and all of the other garden plants that grow in soil.

Just how much do you know about the roots of your garden trees, shrubs, herbs, and lawn? Do you know, for sure, what purposes the roots serve, and what it is they require for their own growth? Do you appreciate the importance of healthy roots for good top growth?

Someone has wisely said "to grow better plants, grow stronger roots systems." Although this statement is deceptively over-simplified, it is a true one.

There is a lot of misunderstanding amongst gardeners about some of the most fundamental facts with regard to roots. We should not be disillusioned, but rather reach a new level of respect for the wonderful order in biological phenomena to learn that roots do not *seek* water and minerals, or to find that roots do not absorb food from the soil.

We have often made superficial observations from which we might conclude that roots do seek things, since we have seen them growing towards moist soil, so what is the explanation? If we stop to think more deeply about this question, we recall that new growth takes place at the tip ends of the roots, where new cells are being formed. Now the tips of the roots are very sensitive to the moisture supply, oxygen, and minerals necessary to them for continuous new cell formation. That is, as the tips grow between the particles that make up our soil, a little better supply of

moisture, etc., on one side of the tip will stimulate faster cell division on that side, and so turn the tip end towards the better supply. So from this it is not hard to visualize how it happens that roots in the garden, or even in flower pots are found to be most abundant in places where there is a more satisfactory supply of those things that they require—they just grow faster there, because they *can*!

But why can't we say that plants get their food from the soil? First, we must define what we mean by food. The biological definition says that food is any carbon-chemical that can be used by living organisms as a source of energy or of building materials for growth and repairment of tissues. We refer to dietary recommendations and see lists of carbohydrate, fat, and protein sources. These are the three main kinds of food used by both plants and animals. But green plants, growing under favorable conditions, *manufacture* all their own needs of these and do not take them from the soil. They also manufacture their own vitamins! So packages of minerals sold as "plant food" help to perpetuate a myth, for the minerals are only part of the raw materials used in food making inside the cells of the plants.

Actually plants, through their roots, take about twelve important minerals from the soil. Certain kinds are absorbed in greater quantity than others; for example, nitrogen, phosphorus, and potassium (potash) are used more extensively than are mineral elements such as manganese, boron, and zinc. All, however, are equally important when in the right proportion.

Water is absorbed from the soil by



the roots in an amount far greater than that of all the other materials combined, for it not only is required for nearly every vital activity that occurs inside the plant, but is also lost into the atmosphere from the leaves and stems, and all such losses must be constantly replaced.

From the practical standpoint, we need to know how and where absorption takes place, and how to adjust conditions for maximum efficiency. Nearly all absorption is done by a weak water-solution of minerals passing through the thin, delicate surface of root-hairs to the inner cells and "water-tubes" of the root. You can call such a process diffusion or osmosis, if you want to be more technical. If you haven't seen root-hairs, a little "laboratory work" at home will teach a thrilling lesson. Soak a pinch of radish or mustard seeds overnight in water. In the morning, place these seeds on a piece of wet paper towel; then, press the towel against the inside of a jar so that the seeds are held between the paper and the glass. Put a lid on the jar (loosely), or turn the jar upside down in a saucer of water, and set away in a dark warm cupboard for 36 to 48 hours. By this time the root sprouts should have grown out long enough for the root hairs to be developed. The cluster of fuzzy material about one-quarter of an inch back of the tip is made of hairlike projections from cells of the epidermis, or "skin", of the root.

These tiny hairs grow out, as you see them, between soil particles and absorb the soil moisture and soluble minerals it contains.

The important thing to keep in mind is that such absorbing surfaces are formed only at the growing tips of roots, so to promote the efficiency of root absorption, we must do all we can to encourage continuous growth and branching of roots. To

do this, we have to do all we can to see that the right temperature is maintained in the soil (65 to 80 degrees for most plants), that enough moisture is present, that the soil is properly aerated, and that a suitable proportion of required minerals is available.

There is not much we can do about adjusting soil temperature in the garden, other than by the use of mulch and shade, so we usually have to rely on natural conditions. But there is much that we can do in adjusting the water, air, and minerals in the soil. Actually, proper watering helps soil aeration. Water applied in amounts equal to an inch or two of rain at intervals of a week or more between waterings will permit the soil to "breathe", and supply oxygen to the growing roots. Roots require plenty of oxygen for normal respiration and still more when they are "at work" absorbing minerals. Don't forget the importance of maintaining soil organic matter, for it helps this air and water balance wonderfully.

The proper minerals added to the soil will help the roots to help the top of the plants, and *vice-versa*. The mineral element most commonly short in supply in the Rocky Mountain region is nitrogen, so in many soils nitrogenous fertilizers alone will be beneficial. If there is reason to believe other elements are also in short supply, it is well to use a mixed "complete" fertilizer. Be careful of excesses, however, as the tender absorbing surfaces may suffer if they come in contact with a too-strong solution of chemicals in the soil.

By establishing conditions most favorable for root growth, the top will thrive and grow to their utmost. As a result of this there will be more leaf surface and the leaves will be more efficient in manufacturing sugar. This means that there will be more of



all kinds of foods both for top growth and for root growth. There will also be more food left over for storage in the stems and roots of perennial species of plants. It is well for us to keep this point in mind, that food must be stored in stems, roots, bulbs, corms, tubers, etc., for the next season's early growth. So the efficiency of root development one year, and its effect upon top development, will have an influence the following year!

Since injury to roots during transplanting is almost unavoidable, we must finish this discussion with a few words about that problem. Keeping in mind that the total amount of root development before transplanting is that amount in harmony with the plant as a whole, we can see that any loss of absorbing surface will upset the balance between the roots and tops. If such injury is serious, it may be necessary to sacrifice much of the top growth to reduce water loss.

On trees and shrubs that have thick roots with few branches, it is almost impossible to move them without major injury to the root system. That is the reason why it is easier, as a rule, to move fibrous-rooted species—there is total damage at the time and there is quicker formation of new branches with their absorbing ends.

But for any plant, it is worth keeping in mind that the less injury by cutting off roots, bruising them, or letting them dry out, the quicker the roots can begin to work efficiently again. Since there is a short period (even under the best of circumstances) when unavoidable injury will slow down absorption, protection of the top (especially when the leaves are on) is important in slowing down water loss. Protection may be provided by shading, windbreaks, judicious pruning, fine water sprays, or a combination of these. But keep the roots moist without drowning them!

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## ARBOR DAY

By JACOB V. SCHAETZEL

COLORADO adopted a law in 1889 setting aside the third Friday in April of each year to be known as "Arbor Day" and the law says that this day shall be a holiday in all public schools of the state and the school offices and teachers are required to have the schools observe the day by planting of trees or other appropriate exercises. In addition, it enjoins the Governor to issue a proclamation recommending that this day be duly observed and also the County Superintendent of Schools shall make an annual report to the State Forest Commissioner of such action as has been taken in the various counties.

The first Arbor Day was observed in Nebraska in 1872 and the people of our city and state and the Rocky Mountain Empire can well afford to observe this day by planting trees, adorning public and private grounds, in general, awakening an interest in the value of trees, shrubs and flowers. During the Fall of this last year, the West suffered some very serious forest fires. Also, our beautiful pine trees are now beset by beetles and we seem to be suffering from a plague of grasshoppers. Attention should be called to the remedies which are available for the control of these pests. Those who are interested can write to the Colorado State Agriculture College at Fort Collins, Colorado, Attention State Extension Forester and give data on what trees are available and where to obtain them for planting.

Our various communities can plant a tree to commemorate an outstanding citizen or event and many of our towns have outstanding men and women who have loved flowers and plants and who have performed great civic work.

The Columbia Federation of Women's Clubs planted a white birch which they call "Mother's Tree." This is planted in Washington, D. C. There are more than 40 living trees planted by George Washington. They are located in Mount Vernon, Virginia, and were planted by his own hands or under his supervision. Many of us have seen the beautiful Pecan trees planted by the Father of Our Country on the grounds of Mount Vernon. The nuts were given to him by Thomas Jefferson.

I would like to suggest that our Colorado Forestry & Horticulture Association plant two trees on the State Capitol grounds or Civic Center grounds in honor of Secretary of Agriculture Brannan and Secretary of Interior Chapman.

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its civic life and whether we shall go haphazardly along our way planting trees, shrubs and flowers without rhyme or reason or whether we should have a well coordinated plan under civic and state direction is going to be up to those who love trees and the great outdoors. Too many people plant too many trees. A tree that will grow to any large size should be planted from 40 to 60 feet from another in order to permit it to attain its full beauty.

Some trees, like the Boleana Poplar should not be planted, in my opinion, on private property but should be placed in a long line alongside of irrigation ditches or highways that stretch for miles. A long hedge of Spirea should also run for a mile or so, backed by the Flowering Crab, Russian Olive and others. These could be planted along Cherry Creek and the Platte River and also we should begin to think about Sand Creek.

Those individuals who take hold of this idea of Arbor Day are helping the community, our state, and our country. One nice thing about it is that it looks forward and not backward.

The Men's Garden Club of Denver has for one of its mottos, "Plant not alone for tomorrow but for a hundred years."

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## PRESIDENT'S REPORT FOR 1953

By FRED R. JOHNSON

THIS is the 10th anniversary of the formation of the Colorado Forestry and Horticulture Association, but it marks the 70th anniversary of the establishment of the parent organization—the Colorado State Forestry Association. Since the business of the Association is largely transacted at meetings of the Board of Trustees, it is customary for the President to briefly summarize the activities of the Association at the annual meetings.

Here are a few activities: Horticulture House has established itself as a center for information on gardening and horticulture, which I believe has met the fondest expectations of its donors. During the past year it was used 128 times for meetings of committees, trustees and affiliated groups.

Twelve issues of the Green Thumb, containing 548 pages of valuable information and pictures, were furnished to our members. Many compliments were received on the high quality of the articles and the makeup of the magazine.

In 1953 it cost \$11,188 to publish the Green Thumb. Advertising income of \$4,297.51 made the net cost \$6,890.63, not including the time of the editor and assistant. These costs are above those of the preceding year, due partially to inflation, and also we are giving the membership a bigger and better magazine. As a matter of fact the cost of publishing twelve issues of the Green Thumb is slightly more than the price of a \$3.00 membership.

However, the magazine, the advice to gardeners, the use of the library and other facilities of Horticulture House are public services that cannot be measured in dollars and cents. These are part of the educational and

general welfare objectives for which the Association was incorporated.

The Association has been able to offer many of these services through the interest and kindness of our patrons and donors and other good friends who contribute liberally of their time and money. The treasurer's report for 1953 will also appear in the next Green Thumb. I want to point out the need for a realistic survey of this report by the directors. It shows that the outgo of \$20,311 exceeded the income by \$673, although there was a cash balance at the end of the year of nearly \$5,000. Membership dues amounted to \$8,625 with 2,272 on the rolls at the end of the year. This number should be doubled.

To carry on the public service program of the Association it is necessary to supplement the income from memberships, donations and advertising with benefits. The plant auction last spring netted the Association \$721.60 under the able leadership of Earl Simonson, assisted by Mrs. Charlotte Barbour, LeMoine Bechtold, Dr. A. A. Hermann, John Swingle, George Stadler, Pat Gallavan and many others, including the Denver Nurserymen's Association and the seed dealers. We regret that our enthusiastic auctioneer, John Swingle, is unable to be with us tonight, and we wish for him a speedy recovery.

The Look and Learn Garden Tour proved profitable (net \$703.60) and educational—27 gardens representing a cross-section of gardens of the city. Many who made the tour expressed appreciation for the help of the experts, and stated that this service made our tours distinctive and worthwhile. The cost of \$2.75 for the four tours represents a charge of but



cents a garden. Mrs. Sue Kelly and her assistants are congratulated on the successful 1953 tours.

Our Association is continuing its interest in and cooperation with the Botanical Gardens Foundation of Denver, although the Foundation is a separate entity and a going institution. Horticulture House is the headquarters of the Foundation. Our Mrs. Mildred Cook is assistant secretary-treasurer for the Foundation. Horticulturist George Kelly is responsible for surveying, recording and labeling so that the essential research nature of the arboretum may be carried out. We are happy to be able to assist in this worthy enterprise.

In fact this spirit of cooperation, of working for the common good along the lines of our objectives is the keynote of the Association. We are cooperating with the Men's Garden Clubs in their national convention next June in arranging for the appearance here of internationally known horticulturist, Dr. Chadwick of Ohio State University. The Association assists the various garden and specialty clubs.

As a result, largely of the work of the Association's committee on State Parks, whose chairman is Mrs. Charles Enos, we now have a State Park Advisory Council under the able leadership of Prof. J. V. K. Wagar of Colorado A&M College. This Council was appointed by the State Land Board which is also the State Park Board. We hope that the Council may be able to make a start on a State Park System for Colorado.

Several new projects that promise to be of considerable value were started during the year at the suggestion of Mr. S. R. DeBoer. A Metropolitan Denver Parks Conservation Committee headed by Mr. DeBoer is making a study of park extension possibilities to take care of

the needs of a rapidly growing population in these areas. A representative group of citizens from Denver and adjacent communities — Aurora, Cherry Hills Village, Englewood, Littleton, Lakewood, Wheat Ridge, Arvada and Golden—has started this study.

A committee on Roadside Development under the leadership of M. Walter Pesman is studying several main highways to see what can be done in the way of planting trees and shrubs, soil stabilization on cuts and fills, and roadside stopping places. The committee has representatives from the State Highway Department, the U. S. Bureau of Public Roads, the Blue Star Highway Association, the Recreation Association, and citizens of various interests.

A committee on Home and Shade Tree Planting is studying plans for beautifying some of the new housing developments in Metropolitan Denver. This committee, with Kenneth Wilmore, chairman, and George Stadler, vice chairman, is cooperating with the Education Committee (Herbert Gundell and George Kelly, co-chairmen) in arranging for a series of neighborhood meetings in March and April to stimulate interest in planting.

Fourteen volumes were added to the library during the year. Its shelves, with over 1800 volumes devoted to horticulture, gardening, landscaping and conservation, as well as a good selection of magazines along these lines, are increasingly used for study and research. However there is no demand for night use of the library, this having been tried during March and April, with few callers.

The long illness of our good librarian and director, Mrs. Helen Fowler, is regretted by her many friends who extend best wishes for



an early recovery and good health. Her enthusiasm and interest is responsible for our splendid library valued at about \$8,000 and a cash balance of \$2,775 in the library fund at the close of the year.

The Outdoor Activities Committee arranged for many fine trips throughout the year. One of the most interesting and having the largest attendance was a day at Glenmore Arboretum and the studios of Mr. and Mrs. Albert Bancroft. Mr. Bancroft showed the group some rare plants and flowers on his wilderness preserve, including purple saxifrage on a rocky cliff, wood lily and the yellow lady-slipper orchid.

During the year the Association took a stand in opposition to the construction of a high speed highway in Bear Creek Canon which would spoil much of its scenic beauty. It protested against the proposed sale of a portion of City Park, now used as a municipal golf course, for a super-market.

It adopted a resolution recommending constructive changes in the D'Ewart Bill concerning the use of National Forest grazing lands.

Letters were written by a number of members protesting the construction of the proposed Echo Park Dam in Dinosaur National Monument.

Opportunities to take a positive stand on public issues come up from time to time and I hope this Association will continue to act in accordance with the objectives for which it was established. Some of us old timers who have known and appreciated Colorado's mountains for many years would like to see a reasonable portion preserved as wilderness areas. We do not favor restricting use along the lines of a typical cartoon of the period when I first came to this state. This depicted Gifford Pinchot, inside a high fence, gun in hand, standing

by a large sign reading "This is a forest reserve, keep out." Under the system of multiple use developed over the years the National Forests are used and enjoyed by large numbers of people.

The same is true with the National Parks. The Rocky Mountain National Park had 1,420,000 visitors in 1953, the eighth straight year that increases were reported. Mesa Verde Park had 136,000 more than double the number reported five years ago.

The use of our National Parks and Forests will continue to increase. In the Denver area with a population of 700,000 in 1970 and the exodus from the city every weekend. Or envision the United States with a population of 200,000,000 in 25 years, and the increased use of public lands that will occur.

That is why this Association should continue its fight for the preservation of our National Parks, and should oppose the attempts of private interests to become entrenched on public lands. This was the reason for the objections of members of the Board to the proposed grazing bill last summer. As pointed out by several, proposals to grant permission to individuals to construct improvements on National Forest lands might result in the establishment of equities that might have serious effects on the public use of these lands in years to come.

A movement has been started in East Texas to sell the National Forest timber lands in that state, allegedly to pay off the public debt and to take the federal government out of competition with private business. The fallacies of such a proposal are pointed out in the January issue of *American Forests*. I merely mention this to emphasize that the friends of conservation must be ever on the alert to watch out for and analyze such projects in the light of whether the



will be for the public good of a rapidly increasing population.

And so fellow "Green Thumbers" there is work for us to do, not only in beautifying our own homes and gardens but also in making our City, our State and our Nation a better place for us and our children to live. Our thanks to the many faithful friends and workers on committees and other activities who have made this Association a valuable asset in the life of our community.

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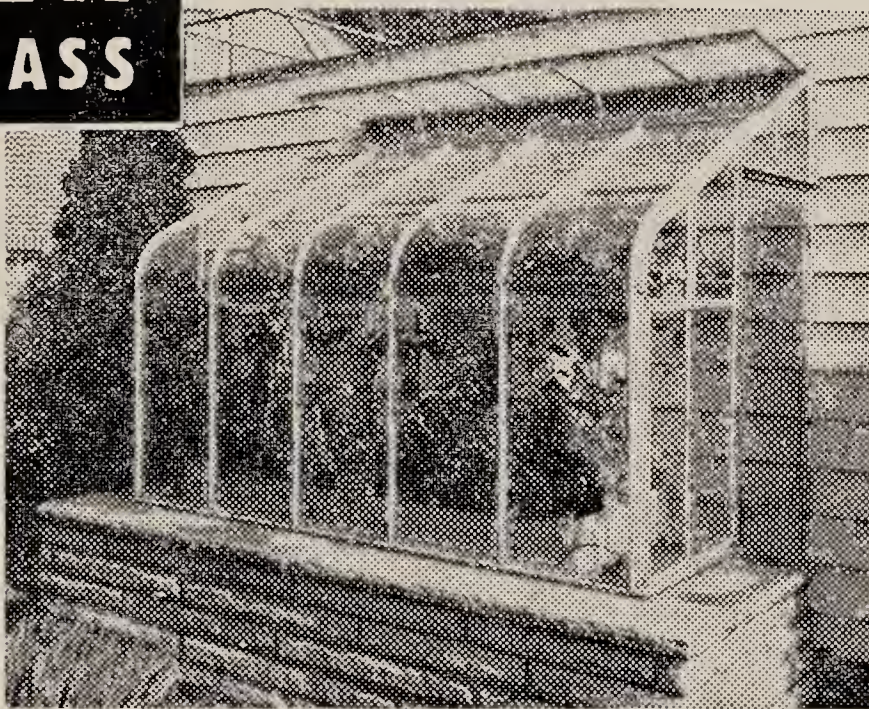
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## FINANCIAL REPORT FOR 1953

NET WORTH, as of January 1, 1953:.....\$ 5,469.

### INCOME:

Memberships and Dues.....	\$ 8,630.11	
Advertising in the Green Thumb.....	4,297.51	
Donations .....	4,671.01	
Benefits and Miscellaneous Income.....	2,043.12	
Furniture and Fixtures Inventory (added to Net Worth, 2-18-53).....	2,740.00	22,381.
		<hr/>
		\$27,851.

### EXPENSES:

Printing the Green Thumb.....	\$10,364.92	
Salaries, Horticulture House, Office, etc.....	9,949.65	20,314.
		<hr/>

NET WORTH, as of December 31, 1953:.....\$ 7,536.

## NEW MEMBERSHIPS

### February and March, 1954

Mrs. J. R. Donaghy, 2938 8th Ave.,  
Pueblo, Colo.  
Mr. Charles Edgar Adelhelm, 146 So.  
Sherman, Denver 9.  
Mr. Henry Barrie, 2555 W. 37th Ave.,  
Denver.  
Mr. Archie L. Morgan, 1553 Steele St.,  
Apt. 4, Denver.  
Mrs. Loretto Hart, 1249 Santa Fe Drive,  
Denver.  
Mrs. G. M. Estes, 5505 Tejon St., Denver.  
Mr. Gilbert H. Sauer, 952 Downing St.,  
Apt. 3, Denver.  
Esther L. Miles, 9701 S. Iliff Ave., Den-  
ver 20.  
Mrs. William H. Bailey, Box 292, Gunni-  
son, Colo.  
Mrs. William Felder Cook, 1530 Forest  
St., Denver.  
Mrs. Michael Handler, 1617 Xavier,  
Denver.  
Mr. M. Thomas Slusher, 770 So. Sherman,  
Littleton.  
Mrs. W. J. Clancy, 1260 Del Mar Pkwy.,  
Aurora.  
Mr. L. A. Wilmes, 3280 So. Birch St.,  
Denver.  
Mrs. R. W. Hanington, 1019 Clarkson  
St., Denver.  
Mrs. Sidney H. Dressler, 4623 E. Dart-  
mouth Ave., Denver.  
Mr. Fred W. Hermann, 7780 W. 59th  
Ave., Arvada.  
Mary Sprigg, 2456 So. High, Denver.

Carol Thomas, 2500 So. Fillmore S  
Denver.

Mildred T. Dawson, 3029 So. Monroe S  
Englewood.

Mrs. Gano Senter, 1145 So. Logan S  
Denver.

Mr. A. D. Roberts, Jr., 1297 Wheelin  
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Mrs. Helen Fowler.....Shadow Valley Gard  
George W. Kelly.....Horticul  
Mrs. Frank McLister.....Home Garder  
Mrs. Robert Perry.....Home Garder  
Earl Sinnamon .....Arboricultur  
William Lucking .....Horticul  
Paul N. Morrow.....Landscape Garder  
Mrs. John Evans.....Home Garder

#### Term expiring in 1956

Mrs. Henry J. Conrad.....Home Garder  
Dr. A. A. Hermann.....Home Garder  
Mrs. E. R. Kalmbach.....Botan  
Mrs. John MacKenzie.....Home Garder  
Mr. Robert E. More.....Lawyer & Evergreen Special  
Mrs. James J. Waring.....Home Garder  
Mr. M. Walter Pesman.....Landscape Archite  
Mr. Scott Wilmore.....W. W. Wilmore Nurser  
Dr. Moras L. Shubert.....Botany Dept., Denver Un

#### Term expiring in 1957

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Mrs. George H. Garrey.....Home Garder  
Fred R. Johnson.....U. S. Forest Serviec, Retir  
Milton J. Keegan.....Lawy  
John Swingle .....Arboricultur  
LeMoine Bechtold.....Merchant, Plant Breed  
Herbert Gundell.....County Agricultural Age  
Armin Barteldes .....Seeds  
Mrs. John Newman.....Home Garder



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LIBRARY: Mrs. Helen Fowler, Chairman, Mrs. Frank McLister, Co-chairman, Mrs. Helen Phipps Bromfield.

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**MANUAL of THE PLANT  
of COLORADO**

By H. D. HARRINGTON

Denver Sage Books, 1954, \$8.00

Review by M. Walter Pesman.

Finally, with a sigh of relief, you can relax: Harrington's book is out. We now have a recent authority to turn to in regard to up-to-date names of native plants. We have the latest checked descriptions. We have keys that are made for the purpose of identification and that do not depend primarily on a microscope. From the casual check-up of a number of them I bet they'll work. It is in line with the stated purpose of the book: "to provide a means of identifying the plants of Colorado."

"Manual of the Plants of Colorado" is a large volume: 666 pages of the size of Bailey's Cyclopaedia of Horticulture. It looks substantial and dependable. The fact is, it looks like the sort of book that Dr. Harrington would get out.

Isn't it interesting that even a strictly scientific book reflects the author, as does any book. Its very simplicity and straight-forwardness is indicative. One feels that here is an effort at creating order out of chaos, an attempt to gather up the available information from various sources and to make it available to anybody who is sincerely interested, and willing to make an honest study.

This manual is not a "popular flora"; it is a strictly botanical compilation and study. No pictures or pen-drawings give a lighter touch, though I understand that Dr. Harrington himself would have liked them, if it had been feasible. It would have raised the price inordinately.

Here are some important facts about the book. A total of 2,793 species are included, as well as 35



varieties and subspecies. About one out of every 30 species listed constitutes a new record for the state, some being new introductions, others having been overlooked by plant collectors. Most of the genera are provided with common names, some from the standardized Plant names.

In addition to the summary of Families, Genera, Species, etc., and the pleasantly complete Glossary, there is a much-needed article on Vegetation Zones in Colorado by David F. Cosello. It indicates the typical ecology of the Plains Area, Semi-desert Area and the Mountain and Plateau Area. The latter is divided in five associations: Pinon-juniper, Mountain shrub

(Oak, Mountain Mahogany and Serviceberry), Ponderosa pine-Douglas fir, Spruce-fir and Alpine. Each of them indicates the common plants to be expected in the zone. With the aid of this outline we can easily orient ourselves and we can at least know what to look for. Now if some one will make an ecological map of Colorado!

A proper review is supposed to have some more or less hidden barbs in order to distinguish it from an eulogy, so here goes. I don't like the print too well: can't read any of it without glasses, and even then the long lines of smallish print or difficult.

Its unwieldy size makes it a typical



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desk copy; I used to take Coulter and Nelson in the field with me, so as to check up on any plant then and there; little chance for that with this volume. I suppose that is the price we pay for completeness of information.

For a while I could not put my finger on the reason for the "stark" impression of the pages. Then it dawned upon me that it was due to the lack of Family Identification on the top of each page; we are used to that in other floras. But after all, there is a good index!

Looking at this brand-new, neat, substantial volume I am trying to visualize how it is going to look after a few years of use. It seems to have good solid paper, a strong binding, and luckily, has a number of extra blank pages in the back for notes.

Knowing the hard usage it will have, being consulted on numerous occasions, with marginal notes in pencil here and there, it will soon take on that companionable, intimate look we sometimes associate with a favorite house coat, almost a necessary part of us. It will be well-worn and dependably comforting.

And that, after all, to my way of thinking, is high praise.

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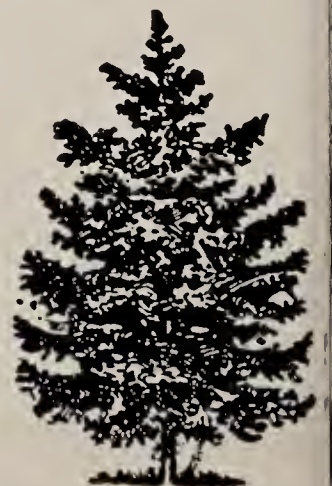
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## SEASON FOR DORMANT SPRAYS IS HERE

From Shade Tree Digest

Spectacular shade tree damage usually is quickly detected and the cause easily ascertained. Then, remedial measures can be immediately, and usually successfully, applied. Unfortunately, injury stemming from certain diseases and insects occurs so gradually, and over such a long period of time, that it often escapes notice until serious damage has been caused. Scale insects, as a class, constitute one of the principal sources of this type of injury.

Scale insects live upon sap. The mouth parts, composed of slender, bristle-like organs encased in a sheath, form a beak that is used to pierce the outer covering of twigs and leaves thus gaining access to the sap in the inner tissues. One scale insect, or even a few dozen, do little harm. But in a heavily infested tree, literally thousands of these insects may be found on a single branch, each acting as a miniature suction pump drawing from the sap-stream. Deprived thus of the normal supply of sap, leaves on an infested branch are small, pale in color, and sparsely distributed; in time, the bark becomes shriveled and dry, and the branch dies. Several years may elapse before the insect population increases sufficiently from the initial infestation to kill the branch.

Most scale insects are small and inconspicuous; during the greater part of the life cycle of most species they appear as tiny, whitish-gray to dark brown, bits of wax or resin adhering to the leaves or bark. Varying with the species, they are more-or-less circular, broadly oval or pear shaped. Some are quite flattened as they adhere to the bark; others are globular.

Some species overwinter as eggs, others as nymphs, and some as adults.

The European elm scale passes winter in the nymphal stage. The adult stage is reached in the spring, the females being wingless, oval in shape and reddish-brown in color with a white, waxy fringe along the body margin. Moving to a suitable location, usually the underside of a branch, the adult female attaches herself to the bark and begins laying eggs. The egg-laying period may last from late spring to mid-summer, the eggs hatching within an hour after being deposited and the young nymphs moving immediately to new leaves where they begin feeding. With the approach of autumn, the nymphs return to the trunk and branches.

Introduced accidentally into this country in the early 1880's, the European elm scale caused so much damage during its first few years here that it earned regard as an extremely serious menace to elm trees. Fortunately, parasitic enemies of the scale became established and various predators appeared, which have served to prevent widespread epidemic infestations. It is still, however, an injurious pest and, when allowed to become established in a tree, can cause severe damage.

The dormant sprays that are applied in the early spring before development of foliage are effective against the European elm scale. In some cases, control sprays may also be applied effectively later in the season when the scale insects are in the crawler stage. With any of the scales, it is important that control measures be applied while the infestation is still light. Since scale insects are very common and very prolific, it is good practice to spray susceptible trees at regular intervals as determined in consultation with your arborist.



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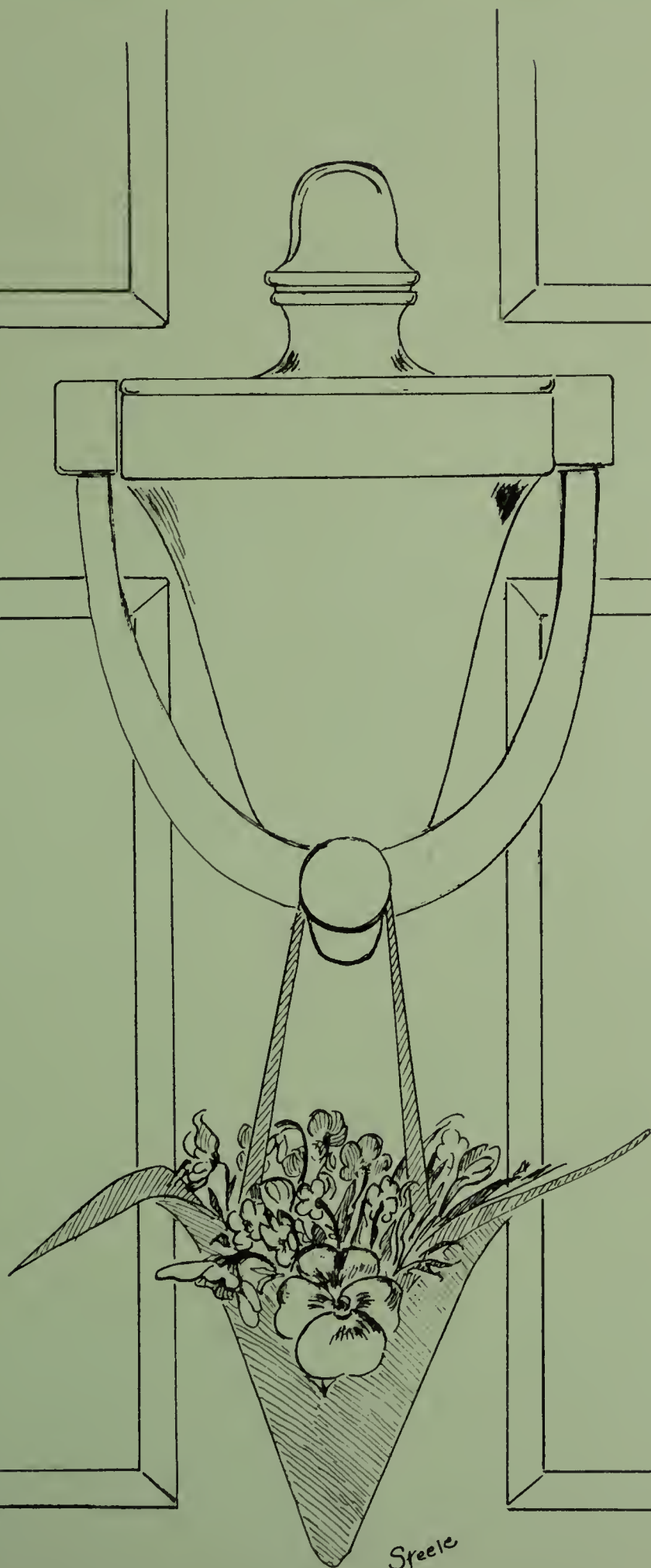


May, 1954

25 Cents

# The Green Thumb

COLORADO'S GARDEN MAGAZINE





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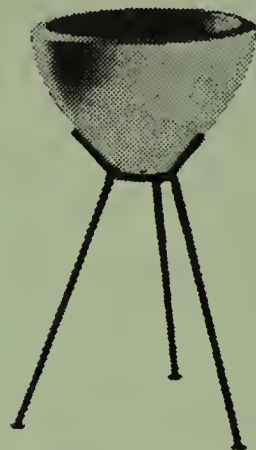


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# The Green Thumb

Vol. 11

MAY, 1954

No. 5

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### **MAY LOOK AND LEARN GARDEN TOUR**

The 1954 season of Look and Learn garden tours starts May 26, Wednesday, from 9:30 A.M. to 5 P.M. Six gardens will be shown, each having something that other gardeners may learn to help make their own gardens better. There will be examples of good design, good plant material and good maintenance; those three things that make a garden good.

One of the gardens shown will be that of Mrs. John MacKenzie at 180 Lafayette. This is a small garden, designed largely for early spring display, but the design is so carefully worked out that it gives a pleasing effect at any season.

The Ray Bowlus garden at 2236 S. Lafayette is a comfortable garden with masses of flowers and interesting

plants all season.

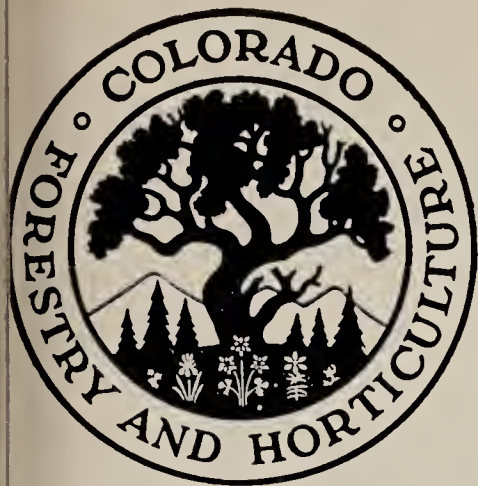
The Earl Davis garden at 2257 Fillmore was carefully designed on a rather formal, square plan to accommodate ice skating in winter. Here will be found many unusual plants and interesting garden features.

The Ted Hutchinson garden at 3800 So. Albion is a newer and larger garden which will give many ideas for designing other gardens.

The Horatio Ramsey garden at 22 S. Sherman in Littleton is a garden that is lived in and loved, and it shows it.

The Glenn Clayton garden at 400 S. Washington is another little garden, but you will wonder how many nice things could be tucked away in it. There is also a small greenhouse that helps to keep the owner's thumb green over winter.





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Organized in 1884

"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to make available correct information regarding forestry, horticultural practices and plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."

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MAY SCHEDULE

May 1 to May 5. Natural Bridges and Monument Valley, camp out trip.  
May 9, Sunday. Early wildflower trip to Boulder, led by Mr. Pesman.  
May 13, Thursday, P.M., at City Hall. Rose Society meeting. All rose lovers invited.  
May 23, Sunday. Circle trip to Estes Park.  
May 26, Wednesday, 9:30 to 5. First

Garden Tour in the Look and Learn series. See details elsewhere.

APOLOGY

Editor and Co-editor of the April issue wish to extend our apologies to Mr. Ray Turnure. He is listed as one of our local consulting rosarians. Mr. Clyde Learned has also been added to this list.  
Mr. Ray Turnure, 40 So. Osceola—WE 4-1302. Mr. Clyde Learned, 988 So. Williams—SP 9490.

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## CHERRY DISCOVERS SOME OF THE JOYS OF GROWING THINGS IN THE MERRY MONTH OF MAY

**M**AY 1. The first of May, and what a day. The wind is blowing just a little and it is the temperature which makes one think that summer is coming, yet it is cool enough to make it comfortable working. It is thrilling just to be out of doors and see on every side the annual wonders of Nature coming again into new life and growth. It makes one feel a closeness to Nature, or God, and as though you, in your efforts of encouraging plants to grow, were in partnership with this greater force of life.

It is interesting to see how some plants are far out in leaf and others have shown no sign of life yet. The bush honeysuckles have had green leaves on them for many weeks and whenever the weather gets too severe and kills them there are new ones coming. The old Walnut tree, has shown no sign of life. I heard Dad say that it could not tolerate having its new leaves frozen. He also called my attention to the fact that those plants that came in late were generally shallow rooted and affected by short periods of warm weather, while those that started later were generally deep rooted and so were not induced to come into growth until the weather was really safe.

Every day I see something new; a bud swelling, a new leaf or a blossom that has suddenly appeared. I just can't get to do any real work this kind of a day. I am going to call up a few of my friends and take a tour of the park to see what we can see. I'm going to ask Dad to go along and name some of the trees and shrubs we see there and tell us a little about how they grow.

May 2. What a day we had yesterday. Five of my friends went along to the park and with Dad's help we learned a lot about trees; how to identify the different kinds from their bark, leaves, fruit and flower habits and their general size and shape. I just thought that trees were all trees with bark and limbs, and that's all. It's lucky that the weather changed today and it is colder and snowing a little, for I feel sore muscles that have been unused all winter and then got a too strenuous workout yesterday.

It is more fun to learn things about plants when there are others also interested. We should take more trips like yesterday and possibly we would know more about selecting plants to fit each situation that we have at home. I'm going to call the girls over this evening to look over some books that Dad left which explains more completely some of the things he showed us about plant growth yesterday.

We had so much fun and learned so much about gardens this evening that we decided to meet again in a couple of weeks. I would not be surprised if this should not be the start of a new garden club. If we can just remember to not let the "club" part crowd out the "garden" part we should have a very much worthwhile organization.



May 8. Saturday again and I must quit my dreaming and get some work done today. The little plants that I started in the house are growing too tall and leggy, so I must get the soil ready to plant them out as soon as the weather is safe. I called Dad Dendron and he told me that I could not be entirely safe in setting out frost-tender things until after the first of June. It is so warm and nice today that I can hardly believe that we could still have frost.

I'll bribe Red into loosening up the soil where I plan to plant these things, and while he is at it I'll have him spade in some manure and peat. There are some bare spots showing up in the lawn that I'll get him to reseed and cover with a good mulch. That tall Chinese Elm screen hedge is getting so high that I'll also get Red to cut it away back and we will start over again rimming it this summer.

I saw some aphids on the iris this afternoon, which reminds me that as plants grow so do the bugs. Dad calls it the "balance of Nature," and he says that often a late storm which seems to damage overly forward plants may do more good than harm by also curbing overly forward insects. He also talked about how humans have disturbed this balance of Nature, have made it difficult for the birds to keep insects in check, have sprayed unnecessarily with powerful sprays and have brought in thousands of certain kinds of plants to an unnatural environment; so now we can no longer "leave it to Nature", but must learn to control those pests that have gotten out of balance. I'm going to have to take one of those courses in horticulture that are offered by the extension departments of the colleges and learn more about all this.

While we were talking and dreaming Red did get a lot of work done (some of it wrong, and I'll have to do it over again tomorrow). He will be all in and I'll have to wait on him all the rest of the day and evening. I don't believe that men are quite bright, but they are interesting after all, and I guess that I'll keep Red a little longer.

May 9. A wonderful spring day seems to be starting this morning. There are many things to do in the garden, but it's too nice a day to work, so I believe that I'll put up a lunch, get the cameras loaded, grab up the funny papers and get all ready to go to the hills as soon as Red can be wakened.

We had a wonderful day. We got back off the road in the foothills and found a dozen kinds of flowers in bloom. I recognized the Pasque flower from a picture I have seen somewhere but the others were strangers. Mother Dendron says that I should get Pesman's book, "Meet the Natives" so I can learn to name these beautiful things. We saw some strange growths on some of the trees and shrubs that hardly looked like flowers but must have been. The more I see of these things the more I want to know. I must get someone who knows the Native things to take our little new garden group on a mountain trip. We might take the men folks along and possibly we could get them a little enthused. I believe that most men really enjoy beautiful things but just don't want to be called sissies for saying so.

I have wondered why some of the nice things that we saw growing in the hills would not be good for garden planting. I'll call Dad. \* \* \* He said that many plants of the mountains were good for cultivated ornamentals but that it took some time for settlers in a new land to get used to using them and not calling them all weeds. He also said that some plants of the mountains



had very difficult root systems, some would not like our alkaline soils and limited rainfall, while others liked it so well that they grew too fast and "lopped over". I'm going to experiment with some.

May 15. Another good weekend to work, it looks like now. I'm going to get the hardy vegetables planted. I put in some beets, onions and spinach several weeks ago and they are up now. I'll try to get some cabbage planted today and get a few set out, and I'll put in another planting of radishes, lettuce, carrots and peas. That should about take up the space back in the corner, and Dad Dendron says that he will plant some of the things that take more room in a couple of weeks, out to his place. Then he will bring in the things when they are ripe. I still remember that sweet corn that he fed us out to his place last fall. I'll bet that it was not more than 10 minutes from stalk to mouth, and was it good. Mmmmm.

This afternoon I discovered that weeds were coming up all over where I had watered earlier and had not disturbed the soil. I'll bet that I can destroy thousands now in the time that it would take to hoe out a few later. The only place that I do not see many weeds is that patch that I covered with an inch of sawdust last fall.

May 16. After our rather strenuous day yesterday, I believe that we will take it easy today. I know that we can't just spend the day with the funnies and the television so I expect that we will take our lunch out to one of the parks.

We decided to go to City Park and we were quite thrilled to see what was going on there in the east end where the Botanical Garden folks were taking over. We found a whole lane of all kinds of lilacs coming into full leaf and bloom, and there was a start of a collection of flowering crabapple. We saw where they had set out iris and hemerocallis and right in front of the museum there were dozens of beds full of thousands of roses. We must come back later and see them when they are in bloom. We wandered around a little and saw where most of the trees and shrubs in the area were labeled and some one had laid out regular routes where one could walk around and study the trees. It surely makes it more fun when you know the names of trees and how they differ in character. I'm going to ask the man in charge of the Botanical gardens if my little group can't donate some plants for use there. This man told us about the "Look and Learn" Garden tours where interesting gardens all over the community were opened for inspection and gardeners could look at them and learn what they might grow in their own gardens. Some of the pleasure of visiting the parks and mountains is always spoiled because there have been careless people there first and left all manner of rubbish laying around. It seems strange that so-called "cultured" people who have fine indoor manners leave them all at home when they go out doors. I expect that if all the man hours used by parks departments in cleaning up rubbish after careless people were put to better use we would have the finest parks in the world. Mother calls these careless people "Litterbugs" and I guess that it is a good name.

May 22. The weather is really nice today. Dad Dendron came over and told us that he thought that we could put out the tender plants today. He got places ready for half a dozen tomato plants, and he planted soy beans and sweet corn. He did it so efficiently that I was ashamed of the way I fussed around in putting out some zinnia and marigold seed. In clear



ing off things to set out flower plants I cut off some of the straggly tulip tops. My Dad saw me and stopped me. He and Dad Dendron then stood and argued for half an hour about whether these leaves should be left on or not. Dad won when he explained that all the strength in the tulip bed was used up when the bloom was formed and that all strength for next year's bloom must be put into the plant through the action of the sun on the leaves that were left after blooming.

I have been watching Dad Dendron set out plants. He does it in a hurry and yet is so gentle with the little plants. He would not think of setting tender little roots into hot dry soil, or leaving a plant but a few minutes without carefully watering it in. He must really have a green thumb.

He was calling my attention to the condition of my lawn. At his suggestion I have only watered it infrequently, when it looked as though it needed it. Now I have a dense lawn with few spots for the weeds to get started in. He explained that it was important to water during April and May so that the grass roots were forced to go deep and so would be able to tolerate the hot weather that is sure to come later.

May 23. Mother was over last evening and was all enthused about making what she calls "teacup gardens." She plants a few seeds or little cuttings in a little soil or peat and sets them on the window sill at her dentist, doctor and lawyers office. They do not last long, I suspect, but must give a little touch of green where there would be none otherwise. Mother Dendron would be shocked to see the spindly pale little plants growing without sufficient soil, water or sunshine, but maybe they are worthwhile anyhow. Mother was also all excited about starting an herb garden. She rattled off all the traditions about Sweet Marjoram, Thyme, Basil, and Peppermint. I got quite interested and suspect that I'll be having a herb garden too. I'm going to ask the man at the arboretum if he can't get a complete herb collection there so that we can see what each plant looks like.

May 29. Iris, peonies, poppies coming and going every few days now. What beautiful things we can have around us with a little planning and work. Things are growing so fast now that I have difficulty keeping track of everything. Dad suggests that I start a record book and get a lot of plant labels to mark all the things that I have planted. I'll not be able to tell a flower from a weed until it blooms and I would like to know which of the various lots of roses I got did best.

This afternoon Dad Dendron came over and showed me how to prune the shrubs that were out of bloom. He said that usually it was good practice to gradually cut out some of the old stems and encourage some of the new so that a plant would have a longer life without growing out of bounds. It is quite a trick, but not so hard to learn if you have a good teacher.

I'm going to use that vacant place by the garage to plant annuals for picking and making flower arrangements. I might get Mother to coach me in flower arrangement so that I could enter a few things in the flower show this fall.

May 30. We drove around this morning looking at other people's gardens and learning a lot of new flowers and getting ideas that we could use in our garden. We went around the newer parts of town too. It was a shame to see how many young folks were working hard on their grounds and yet had little but a lawn to show for it. I am learning that it takes several



things to make a good garden; a good plan, good plants and careful maintenance. Why didn't more of these young folks take those classes last spring that Herb Gundell gave.

We stopped to talk with some nice looking folks who had a good start of a garden, but some plants looked almost as though they had been burned. We finally got out of them that they had put on a great lot of fertilizer the last week under the impression that if they used more than specified the plants would grow that much better. It seems that Nature just does not work that way. How can an inexperienced gardener know when they are supplying too much or not enough water, fertilizer, or sunshine? Dad Dendron and Mother Dendron seem to know just how much of everything, whether it is a house plant or a farm crop. I guess that ability is what gives one a green thumb.

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## ABOUT GARDENS

By RUTH WICKERSHAM

**I**F THERE is a solution for the troubled state of the world, then look for it in a garden. Someone has said that to have no small town background is one of life's cruelest omissions. If this be true then a garden must have been part of that small town experience.

Do you know the unforgettable odor of freshly spaded earth on a spring day? Have you watched those first little green shoots of radishes or the tender green of lettuce making that zigzag line across the garden? Do you know the smell of lilac blossoms after a spring shower or the

delicate fragrance of sweet peas or that tea rose you have tended with such loving care? If so then you are rich indeed. The poorest person in the world is the city hotel or apartment dweller whose garden is a flower pot.

A garden can provide beauty, food, relaxed nerves, healthful exercise, sound sleep and above all peace in the heart. What other single thing do you know that can produce as much.

Is your faith wavering—then plant a seed. Did you once believe in miracles—then plant a rose. Does God seem far away—then plant a garden.



# SPRING

## THE BOYHOOD OF THE YEAR—*Tennyson*

Compiled by JAMES B. STEWART



### VOICE OF SPRING

I came, I come! ye have called me long,  
I come o'er the mountain with light and song  
Ye may trace my step o'er the wakening earth  
By the winds which tell of the violet's birth  
By the primrose-stars in the shadowy grass,  
By the green leaves opening as I pass.

Felicia D. Hemans.

### THESE COME FIRST

Fair-handed Spring unbosoms every grace:  
Throws out the snowdrop and the crocus first.

Thomson—Spring.



### TWO BY TWO

It is the season now to go  
About the country high and low,  
Among the lilacs hand in hand,  
And two by two in fairyland.

Stevenson—Underwoods.

### "HUM!"

The bee buzz'd up in the heat,  
"I am faint for your honey, my sweet."  
The flower said, "Take it, my dear,  
For now is the Spring of the year.  
So come, come!"

"Hum!"

And the bee buzz'd down from the heat.

Tennyson—The Forester.





# THEY ALWAYS MISS HER

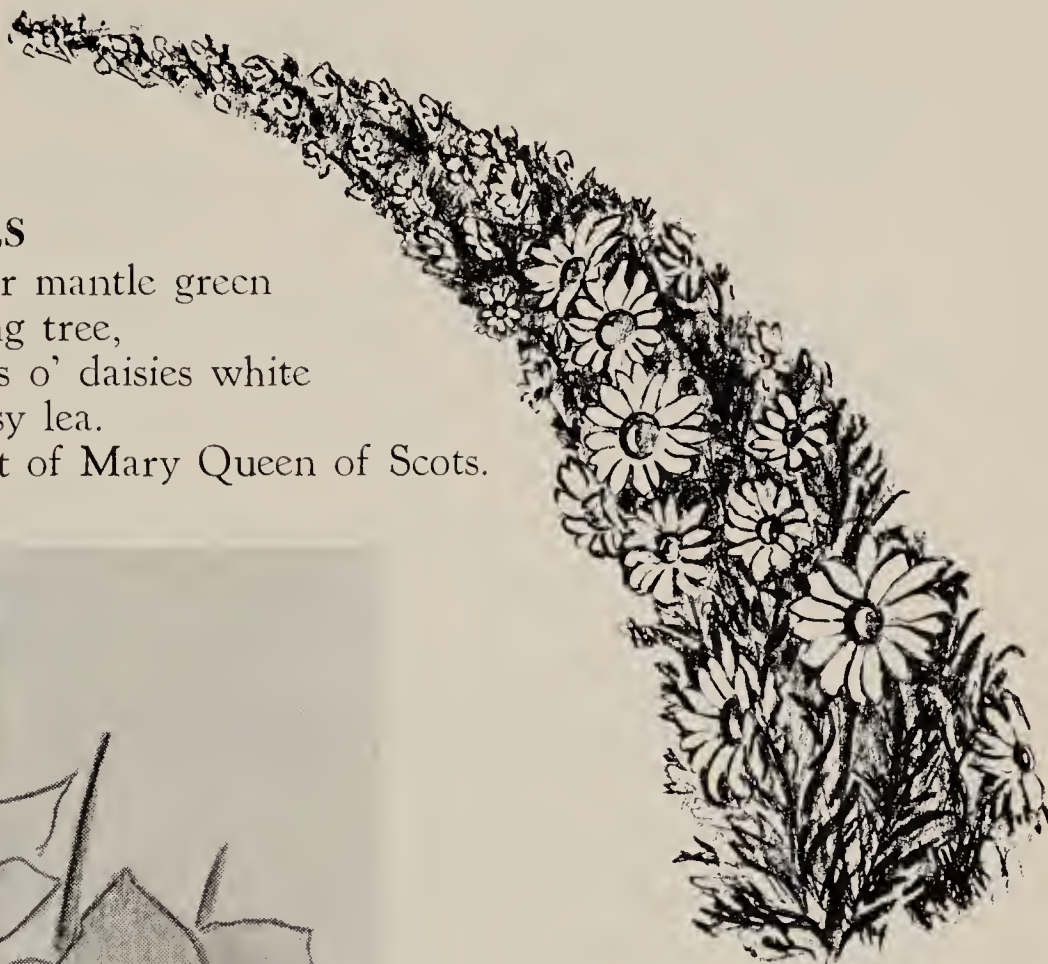
All flowers of Spring are not May's own;  
The crocus cannot often kiss her;  
The snow-drop, ere she comes, has flown:—  
The earliest violets always miss her.

Lucy Larcom—The Sister Months.



# SHEETS O' DAISIES

Now Nature hangs her mantle green  
On every blooming tree,  
And spreads her sheets o' daisies white  
Out o'er the grassy lea.  
Burns—Lament of Mary Queen of Scots.



# A FIG FOR HIM WHO FRETS!

It is not raining rain to me,  
It's raining daffodils;  
In every dimpled drop I see  
Wild flowers on the hills.

A health unto the happy!  
A fig for him who frets!—  
It is not raining rain to me,  
It's raining violets.

Robert Loveman—April Rain.



## LOVELIER THAN HERSELF

"At all events she had always the 'power of suggesting things much lovelier than herself,' as the perfume of a single flower may call up the whole sweetness of Spring."

Willa Cather.



## THE FONDEST CHILD

ROSE! thou art the sweetest flower,  
That ever drank the amber shower;  
Rose! thou art the fondest child  
Of dimpled Spring, the wood-nymph wild

Moore—Odes of Anacreon.

## COME BEFORE THE SWALLOW

Daffodils,  
That come before the swallow dares, and look  
The winds of March with beauty.

Winters Tale, Act I

## ODE TO THE WEST WIND

O, wind,  
If Winter comes, can Spring be far behind?

Shelley.



## ITS AN ILL WIND

Yet true it is as cow chews cud,  
And trees at spring do yield forth bud  
Except wind stands as never it stood  
It is an ill wind turns none to good.

Tusser—Five Hundred Points of  
Good Husbandrie.



Drawings by  
Pauline Roberts Steele





## SEVENTH SUNDAY AFTER TRINITY

When Spring unlocks the flowers to paint the laughing soil.

Reginald Heber, 1783-1826.

## WEEDS! WEEDS! WEEDS!

Now 'tis the spring, and weeds are shallow-rooted;

Suffer them now, and they'll o'ergrow the garden.

And chock the herbs for want of husbandry.

Henry VI—Act III.



## IMPATIENCE

I wish, and I wish that the Spring would go faster,

Nor long summer bide so late;

And I could grow on like the foxglove and aster,

For some things are ill to wait.

Jean Ingelow—Song of Seven.

Seven Times Two.



## FINALLY—THE MIKADO!!

The flowers that bloom in the Spring,

TRA LA,

Have nothing to do with the case.

Gilbert and Sullivan.





## SOME HONEYSUCKLES

By CLAIRE NORTON

EVERYONE knows, and just about everyone grows, the Tatarian Honeysuckle. Its hardihood and its charm have made it a standby for the Rocky Mountain gardener. The Blue-Leaf Honeysuckle is steadily increasing in popularity as its merits become more widely recognized. Trumpet Honeysuckle and Hall's Japanese Honeysuckles are much planted as vines in our area.

But have you tried these Honeysuckles?—

May-blooming Creamy Bells, *Lonicera chrysantha*, belong to the tall, vigorous bush Honeysuckles on the

*Lonicera sempervirens*, affectionately called "Fourth-of-July vine" in our garden. Photo by Mark Norton.



order of the Tatarian. It does not seem to mind dryness, holding its foliage well even during prolonged periods of drought.

A hybrid between *L. morrowii* and *L. tatarica* is *Lonicera bella*, carrying traits from both of its parents. It is less tall than the Tatarian, more of the form of Morrow's, and its white to pink flowers fade to yellow. It has also some of the velvety leaf character of *morrowii* and is considered the most profuse fruiting Honeysuckle of all.

Sakhalin Honeysuckle, a variety of *L. maximowiczii*, introduced in 1917, while still not well known has considerable merit as a medium tall shrub, especially for dry and not too rich a soil. With pampering *sachalinensis* makes too rapid a growth requiring shearing to keep its form tidy. Its leaves unfold crinkly and reddish, becoming dark green later in the season. Its numerous flowers are rather small and dark rose-red followed by red fruits joined in pairs.

Two native Americans, *L. involucrata*, a Coloradoan, and *L. ledebourii* from the West Coast, are chiefly of interest for their twin shining black berries set in a deep purple-red involucre. Of the two, *ledebourii* has a better form, better foliage and showier yellow flowers, but both under cultivation often make too fast a growth and are inclined to sprawl.

Hardy *L. spinosa alberti* shows its best advantage when rambling over a low wall or large rocks. It is too scraggly and spreading to be a good border shrub, but its spinescent branches are graceful, its opposite grayish leaves are willow-like, and it follows its rosy-lilac bloom of June with bluish to white berries instead of the traditional Honeysuckle red.



*L. periclymenum* and *L. caprifolium* are twining Honeysuckles which have been cultivated for centuries. The first is the Wodbine familiar to English hedgerows and the latter of the Caprifoil of old. Both are sweetly fragrant, with creamy-white flowers, purple tinged without, and at their best planted with other vines or permitted to scramble over shrubs or small trees. They, and such other twining Honeysuckles as *L. sempervirens* and *L. japonica halliana*, are much recommended as ground covers.

## Daddy of the Men's Garden Clubs of Denver

When Mr. J. V. Schaetzel, better known to his gardening friends as Jake, started the Men's Garden Club of Denver in 1938, Jake undoubtedly remarked, "Some day we will entertain the National Convention in Denver." Now after sixteen years that original club of ten members has expanded to nine clubs in Metropolitan Denver with a total membership of approximately 300. Credit for this widespread interest in gardening by Denver men is largely due to Jake.

And now Jake's prophecy is to come true. In June, 1954, the nine Denver clubs will be host to the National Convention of the Men's Garden Clubs of America. Jake, a natural for the General Chairman of the Convention committee, is preaching gardening louder than ever. Reports are that his leadership will result in the largest and most entertaining convention ever held by this organization. Delegates from all over America are sending in their registrations.

Although the Schaetzel home at 233 South Birch is surrounded by flowers of many varieties, Jake's first interest is the Tuberous Begonia and

he is an authority on its culture. During the past few years he has instilled this interest in many gardeners with the result that Begonia is now taking its proper place in Denver gardens.

In speaking of the Schaetzel home one cannot forget the gracious hospitality of Mrs. Schaetzel. Numerous have been the occasions when she has entertained the Garden Club and opened her home for committee meetings.

Again speaking of the Schaetzel family, it is probably the only one in the United States where father, son and daughter are associated together in the practice of law.

Thank you Mr. and Mrs. Schaetzel for your wonderful contributions to Denver horticulture.



"Jake" Schaetzel shown walking down a street in Longford, Ireland. He is too modest to allow himself to be photographed in this country.





## SURFACE PATTERNS AND TEXTURES

By HARMAN & O'DONNELL, Landscape Architects

**O**UTDOOR gardens are basically roofless rooms. The ground is the floor, the fences, shrubs, trees are the walls and the sky serves as the limitless ceiling.

Outdoor garden design is a fascinating adventure to all who participate in the endeavor whether an amateur, hobbyist or professional. The outdoor gardens are comparable to the interior design of the house.

Types of floor material and floor covering within the home are utilized to create conversational, all purpose and utilitarian service areas. This is also true and applicable to the outdoor areas by the use of landscape plants and structural elements to form the surface pattern and textures of the ground.

Surface patterns and textures properly designed can create a variety of moods. Brick or concrete, flagstone

and irregular asphalt paving produce an active and stimulating pattern to garden design. For economy's sake predetermined General Garden Design should be completed before paving an area with these materials for too much paving may turn out to be monotonous rather than an area of activity, interest and playfulness.

The feeling of cheerfulness and warmth may be achieved with the use of color and texture. Painted or stained materials, stone, gravel, tree bark, grass, ground covers or flowers may provide the combination of color and texture needed for the desired effect. By using a combination of native plants and structural materials the owner may be able to enjoy and appreciate the garden more fully no matter what season of the year.

The mood of relaxation and coolness may also be successfully achieved



with the use of blue, purple, green and small amounts of white with natural colored structural materials or planting.

The use of water has been very popular in the United States and throughout the world almost from time eternal. Reflecting pools, fountain spray or just the sound of water has a definite psychological cooling and relaxing effect. Thus, in small as well as large gardens, water fountains are almost certain of being the main point of interest in warm or arid climates.

Thus by using some of the mentioned materials, many variations of surface patterns and textures can be combined with fences, shrubs and trees in the garden to create pleasant and utilitarian outdoor areas to harmonize with the architecture of the house.

Therefore, the garden and house form one unit and act as interesting spaces designed for maximum use and enjoyment of every day living.

---

## OPEN LETTER

Mr. Andrew S. De Huddleman,  
Landscape Architect,  
Denver, Colorado.

Dear Sir:

We have just filled out a bid for a large landscape job. There are a number of things on which I would like to get your advice, now that the bids are in and before they are opened.

We know that you have a great deal of practical knowledge of plants in this region, and are not like these office-bred landscape architects, who have never grown a plant and would not know how to ball-and-burlap an evergreen or prune an apple tree.

We also know that some of these complicated specifications, fifteen pages long, are not so much your doings as the government's red tape.

By this time we are more or less resigned to them. If we get a reasonable inspector who knows nursery practice we will have no trouble with him or with the contract.

But, my dear sir, what makes you specify trees and shrubs that we do not grow in our nurseries, and that the average customer never asks for. Let me give you a few illustrations.

The list includes eight *Koelreuteria paniculata*, which none of us are growing and which often kills back to the ground when shipped in from the east. Can you tell us a single place where they are successful in this region? Our salesmen do not even know it.

Then there is *Robinia neo-mexicana*, evidently a southern shrub, that has no business in Colorado; nobody carries it. *Caragana chamlagu* is specified: we can't find it in any of the Shenandoah nurseries. Mountain Ninebark, I suppose, is the same as Low Ninebark. You ought not to specify that, I think, because it is difficult to get. *Amorpha canescens*, *Prunus tenella*, *Rosa blanda*—tell us where to get them and we'll know what you mean.

If you had ever been in the nursery business, you would know that a nurseryman cannot afford to stock these items, unless people ask for them. We are not in the business to educate the public.

Why not stick to the every-day trees and shrubs, that we know will grow? Then we'll all be happy, and we can make a good profit and you will be spared a headache. You see, I am really writing in your own behalf. The general public does not know a spirea from a flowering almond, anyway. Give them plenty of Pfizers and cute little spruces, and everybody will be happy.

Yours, for your own good,

KEN FERGUMORE.



## THE MOST BEAUTIFUL LILACS AVAILABLE FOR 1954

**L**ILACS for America by John C. Wister (published October, 1953, by Arthur Hoyt Scott Horticultural Foundation, Swarthmore College, Swarthmore, Pennsylvania, \$1.00 per copy).

If in one's garden there be room for but one lilac only, or two or a dozen, then a copy of this modestly priced, interesting and comprehensive Report of the 1953 Lilac Survey Committee of the American Association of Botanical Gardens and Arboretums is indispensable.

The booklet points out: "The greatest improvement (in general quality, size, substance, etc., and in range of color and length of season) has \* \* \* been made during the past forty years. These newer varieties are still little known by the gardening public."

The 1953 Lilac Survey Committee was comprised of such eminent horticulturists as John C. Wister, author of many books and articles on lilacs and other flowers, and Director of the Arthur Hoyt Scott Horticultural Foundation; Chairman Donald Wyman of the Arnold Arboretum, Harvard University; Bernard Harkness of Highland Park, Rochester, New York; E. Lowell Kammerer of Morton Arboretum, Lisle, Illinois; F. L. Skinner of Dropmore, Manitoba, Canada; Clyde Heard of Des Moines, Iowa, and Walter C. Borchers of San Jose, California. The committee was assisted by over ninety lilac experts from all sections of America.

Varieties appearing for the first time on the list of 100 recommended lilacs include such gems as Alice Harding, a double white, and Mme. Chas. Souchet, a single blue, both

introduced by Victor Lemoine et Fil of France, and the equally spectacular and beautiful American grown lilacs, Glory, an orchid single, and Night, a deep royal purple single, both seedlings grown by the late T. A. Havemeyer.

Virtually all of the Survey's 100 recommended lilac varieties are as easy to grow and are more dependable bloomers than the old inferior and obsolete varieties too frequently planted. The 38 varieties of common lilac, recommended as "finest" by the survey, include varieties with single and double flowers and in all colors ranging from white, through violet blue, bluish, lilac, pink, pinkish, reddish purple and purple.

The report says: "They will stand a lot of abuse," but tells how to grow lilacs well with a little care and how to prevent the very few troubles lilacs might encounter.

The booklet in its half hundred pages contains a wealth of other useful and interesting information on lilacs and their histories.

If after buying the booklet from the publisher and reading it one should still be uncertain which varieties to grow in one's garden, one can visit the lilac collection of the Denver Botanical Gardens Foundation in Denver City Park when it is in bloom and decide which of the recommended varieties one likes best.

MILTON J. KEEGAN.

Now VIOLETS are red  
And ROSES are blue—  
What the heck next  
will horticulturists do?

Daisy Hastings.



## FROM HELEN FOWLER'S GARDEN NOTEBOOK

**Early Summer Pruning.** Prune all shrubs that have flowered in the spring. Take off their flower heads to prevent forming of seeds which takes the strength from the plants. Prune shrubs soon as they have finished their spring display. Keep in mind that it is during the summer that spring-blooming shrubs grow flower buds for next year.

**Mulching.** It holds the moisture in the ground thus giving full benefit to plants. After watering thoroughly, cover the base of plants with some dry material as a mulch. Be sure this covering is not unattractive. Sawdust and straw make good mulches but you will like peat or a peat mixture for its good looks.

**Hydrangea Blooms from Pink to Blue.** How can this switch be done? Aluminum sulphate is the chemical often used for this purpose. For out of door use, half to three-quarters of a pound is usually enough for each square yard of soil surface. For potted plants, dissolve three ounces in a gallon of water and apply.

**The Time to Plant Madonna Lilies.** Do not plant Madonnas now unless from pots. Naked rooted stock should be planted in August so bulbs may make a growth before winter. They should be planted in good leaf-moldy soil. Let the tops of the bulbs be only two inches deep with sand above and below them to insure perfect drainage.

**Directions for Coverage and Depth of Topsoil.** Cover the area with 2 inches of "Topsoil." How much soil exactly would the gardener need to buy? We buy topsoil by the cubic yard, rarely by the truck-load. The following will answer the question. Six standard wheelbarrows, the size contractors use, equal 1 cubic yard. If the soil is not too compact, one

cubic yard will cover 324 square feet, 1 inch deep. Simple arithmetic tells you that for 2 inches divide by 2, for 3, divide by 3 and so on. This rule is a great help.

**Rooting African Violets.** Do you have trouble with African Violet leaves decaying when you try to root them? Here is a scheme—bore 6 or 7 holes in a  $\frac{1}{4}$ -inch ring of Parowax. Put the stems through these holes and place over a container of water. When the roots have formed, just break the wax apart. Leaves rooted in this way will not rot and there will be no losses.

Who has Sweet Rocket (*Hesperis*) in her garden? I never run on to it. It is a biennial, but hardy, easy to grow and doing well in full sun or partial shade. It resists drouth yet does well during wet seasons. Any good garden soil seems to suit it. Do you know *Hesperis*? It looks like hardy tall Phlox but not so compact. The colors are white, orchid, lavender and purple. It grows from 2 to 3 feet high and is a satisfactory cut flower. If you can stand any flower with roses you might try Sweet Rocket.

I think about everything written on Roses is to be found in the library at Horticulture House. Perhaps the dean of writers on roses was the late Dr. Horace McFarland. If I were trying to influence young gardeners into making friends with the rose, I would suggest McFarland's picture book with hundreds of portraits in color of the best roses. More experienced gardeners need "Modern Roses III" for its genealogy and "Who's Who." Why not try rose growing as your hobby? To many, men especially, it is the acme of gardening. It is never a job, always a grand and glorious "time out" with just enough risk and uncertainty to make it always exciting, always alluring.



# CLIMATIC FACTORS AFFECTING TREE GROWTH ON THE HIGH PLAINS

By A. C. HILDRETH

Cheyenne Horticultural Field Station, Cheyenne, Wyoming  
Extracts from paper presented at Midwest Shade Tree Conference,  
Denver, Colorado, 1953

## PART II

### Soils Affected by Climate

**I**N THIS discussion on climate it seems entirely proper to mention some of our soil problems because these problems result indirectly from our climate. To a considerable extent the nature of a soil is determined by the climate under which that soil was developed. The basis of soil is disintegrated rock. But what happens to the minerals released through the long process of rock disintegration is governed largely by rainfall. In regions of high rainfall the soluble minerals tend to leach out of the soil and be carried away in drainage water. Thus, soils in humid regions are likely to be deficient in lime, potash and other soluble materials. Because alkaline minerals are washed out about as fast as they are released, soils in humid climates tend to be acid.

In dry regions there is not enough precipitation to leach out the soluble minerals. Over millions of years the minerals released by the breakdown of rocks have been accumulating in high plains soils. In dry climates trees seldom require additions of lime or potash to the soil. Soils in dry climates tend to be alkaline because of the accumulation of alkaline materials such as carbonates of calcium, sodium and potassium. As a result our high plains soils are often too alkaline, or too "sweet," for many tree species.

Tree species vary considerably in their tolerance of soil alkalinity. Elms, Russian olive, most spruces, certain

pinus and some junipers are quite tolerant while maples, mountain ash, birches, firs, larches and certain oak and willows are quite intolerant. Between these extremes is an intermediate group, including many common trees, that is neither very tolerant nor very intolerant of soil alkalinity. Thus, in addition to selecting trees adapted to cold and drought we must select also for adaptation to alkaline soil.

High plains soils are not uniformly alkaline. They range in reaction from slightly acid to neutral and through various degrees of alkalinity to such strongly basic soils that no tree can grow in them. Extreme variation may occur within a short distance. For example, in one Colorado town soft maples do well on one side of a main street but on the other side the soil is so alkaline that the maples are almost a failure. Our soils vary in alkalinity up and down as well as laterally. In general the top soil is less alkaline than the subsoil because the scanty rainfall leaches the alkaline materials out of the top soil, carries them downward and deposits them in the subsoil. Sometimes a young tree will grow well for a few years; but when the roots penetrate deeper into the soil they tap more alkaline layers and then trouble starts.

### Chlorosis Caused by Soil Alkalinity

Our chief difficulty with trees on alkaline soils is chlorosis, or yellowing of foliage, due to insufficient iron available in the leaves. These yellow leaves do not perform their normal



functions. As a result the trees make weak growth and are very susceptible to winter injury.

Because iron-deficiency chlorosis is caused by excess alkalinity in the soil it would seem that the proper control would be to make the soil acid. This would remedy the trouble but acidifying all the soil in the root-zone of a large tree would require an enormous amount of acid material and the cost would be prohibitive. The only practical way for us to control this chlorosis in large trees is to supply additional iron.

Two principal methods of supplying iron to trees with iron-deficiency chlorosis are (1) spraying a solution of some iron salt on the leaves and (2) injecting an iron salt into the trunk, roots or main branches. These are becoming routine practices for growing trees in alkaline soils. Which method of treatment is used will depend upon conditions. In general, large shade trees can be treated more economically by injections into the trunks. For this treatment iron citrate is recommended although iron phosphate, iron oxlate and many other iron compounds have been used. Holes are bored with a  $\frac{3}{8}$ " augur about  $2\frac{1}{2}$ " apart around the circumference of the trunk. They should penetrate well through the sapwood. Dry iron citrate is put into each hole until it is nearly full. It is then sealed with grafting wax or some wound dressing. A treatment will usually suffice for two or three years and sometimes longer.

When an iron solution is sprayed on the leaves it must be applied every year and sometimes more than once during a growing season. This method is satisfactory for orchards and for trees in open parks or on golf courses, particularly if the iron treatment can be combined with some routine spray for insect control there-

by reducing the cost of treatment. However, for trees along city streets or on small home grounds spraying is not advisable because the iron salts make permanent, brown stains on concrete, light stone and brick and the operator may find himself with a damage suit on his hands.

### Organic Matter Determined by Climate

The vegetation under which a soil develops is as important to its productiveness as the rock from which it is formed. Soil is not just finely divided rock but contains also plant and animal remains that are continually worked over by the millions of living organisms that inhabit each cubic foot of soil. The complex product is organic matter. Although our arid soils are remarkably rich in minerals they are likely to be deficient in organic matter. Our high plains soils were developed under short-grass prairie rather than under tall-grass prairie or forest. In our dry climate there simply has not been enough rainfall to grow a great amount of vegetation. Consequently, soils in this region do not have the great amount of organic matter such as accumulated to produce the black soils of Iowa and other midwestern states. Our high plains soils are likely to require additional organic matter to maintain the proper physical conditions and to get the best response from our trees.

One might think that in a great livestock area such as this it would be easy to maintain soil organic matter by adding manure. For irrigated crops this is done regularly. For trees, however, this practice has definite limitations. First of all, heavy applications of manure or of any other nitrogenous fertilizer may stimulate too much branch growth which is easily broken by wind or snow. Ex-



cess stimulation may also cause late growth with resultant damage from early fall freezes. For some unknown reason, heavy applications of manure on dry-land trees is detrimental, causing weak growth, restricted root systems and short life. These effects are not observed when manure is applied to irrigated trees.

For all species that tend to be chlorotic in alkaline soils manure makes the situation worse. The reason for this effect apparently is that manure itself is a highly alkaline ma-

terial and when applied to a soil that is already alkaline may result in too high alkalinity for certain species. If one applies manure to trees and shrubs in this climate he should be prepared to treat them with iron compounds in case chlorosis develops. In general, then, we must maintain soil organic matter around our trees largely by the use of peat, leafmold, green manure crops or other organic materials having an acid or neutral reaction and use animal manure with caution, if at all.

## LET'S GROW AND EAT MORE STRAWBERRIES

By J. M. LANCASTER

WHEN growing strawberries in Colorado I find it much better to plant in very early spring. I like to begin late in March if the plants have grown large enough to find. Actually I plant mostly in April, and if other work interferes, even in May, as that way I get big berries on these plants in September and October. Our rows are quite long and with plenty of ditch water we find that the dirt washes to the lower end so it gives the plants plenty of elevation, at the upper end; but at the

lower end it fills in, so we plant about level at the upper end and on slight ridges at the lower.

Planting in rows 30 to 40 inches apart and 12 to 20 inches in the row we find best. The later planted the closer. The varieties we grow are tall ones so we work the ground up from the center, thus the berries are kept well above the rain water. If planting very early one gets about as many berries the year planted as the next, as there are many berries on new runner plants. This is especially true on the "Evermores," as well as "Red Rich." The reason for not having as heavy crop the second year is that we thin the plants to a very narrow row.

Plants will make more berries with no runners, but if you will set very early and save the first runners you get about as many berries from the mother plant and the first runner and then you have a good stand for next year's crop. Of course you should cut off the later runner plants as they will give very few big berries and are not salable plants or worth giving your friends.





We find it best to use barnyard fertilizer. A friend who was a very successful grower, used commercial fertilizer on his at the wrong time, and they burned very badly.

If one can fall plow it is very desirable, in the heavy lands. When using Rototiller be sure to pack the ground well, as I saw very poor stands of all seeds one dry spring when the ground was not well packed.

In planting berry plants press well, planting at same level as they were originally. Try to wheel hoe, hand hoe or cultivate if you have a machine, once every week, till runners get too big.

As to varieties, we have tried most of them, that is, the everbearers, and find the June crop is often frosted or hailed out, but with crops all August, September and October, we get fruit till tired of picking.

In order of best quality I like these: Wayzata, Red Rich, Evermore (Minn. 1166) and Streamliner. The latter seems a very shy producer. Gem has been a good producer especially in sandy ground, but being too short stemmed, is in the mud too much in ditch watering. The Superfection seems to be like Gem, but an improvement on it. The 20th Century makes large fine flavored fruit, but too few plants, and I find it soon runs out. The New Brilliant is a large sour berry with many plants but not berries.

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# VERTICAL ELEMENTS OF THE GARDEN

By HARMON & O'DONNELL, Landscape Architects

**V**ERTICAL elements in the garden help to define space and designate areas for outdoor living, service, activity or play.

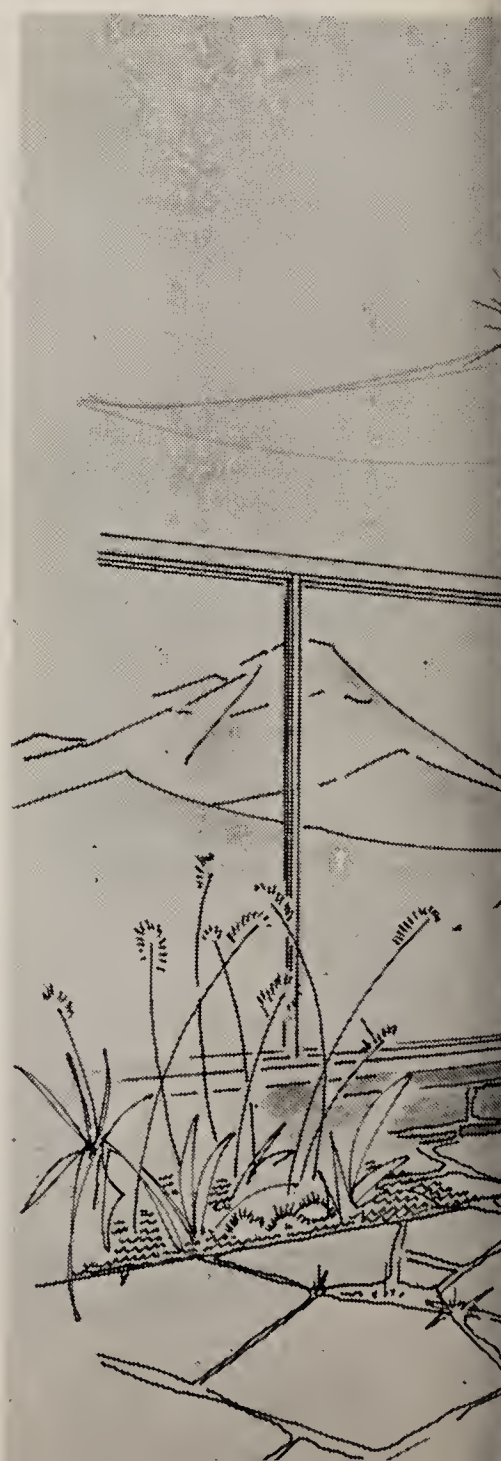
In the past, it was not uncommon for large estates to have great expanses of lawn and massive landscape plantings screening the gardens, tennis court, swimming pool or service area. This type of landscape design on large properties was perfectly acceptable due to the lower cost of material, labor and maintenance at that time.

Today, the design of properties

must express the mode of living, activities and financial abilities of the property owner. The cost of property development should be amortized over a period of years and the cost of maintenance be kept to a minimum. Because lot sizes are comparatively smaller today, outdoor living areas must be designed for compact and multi-purpose uses. In similar fashion, due to the forced economy of home building, the houses reflect the multi-purpose use of rooms and intergradation of the outdoor-indoor areas.

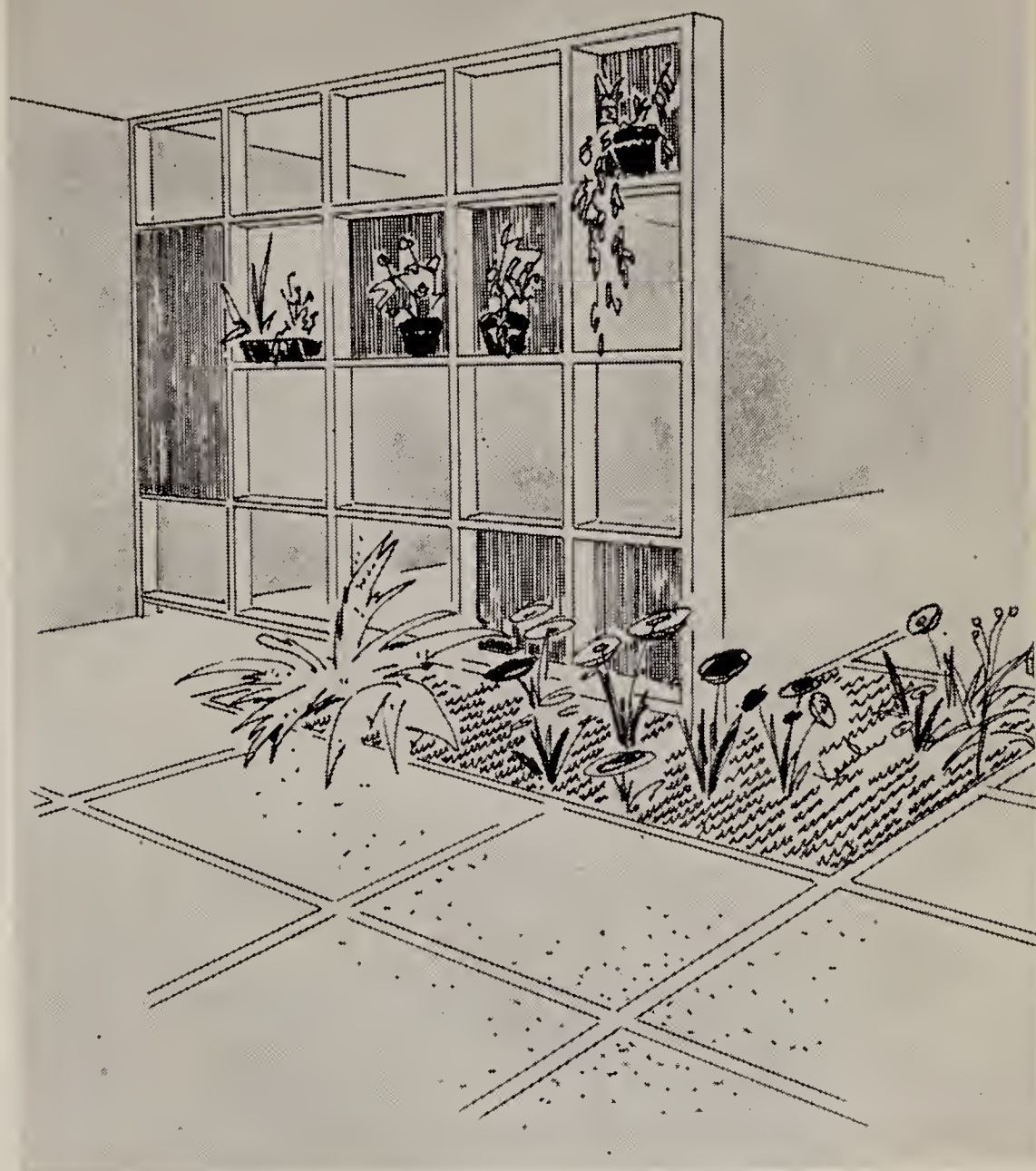
*Vertical and horizontal materials embellished with plants create an area of warmth and enjoyment throughout the year.*

*A view n  
chilling wds*

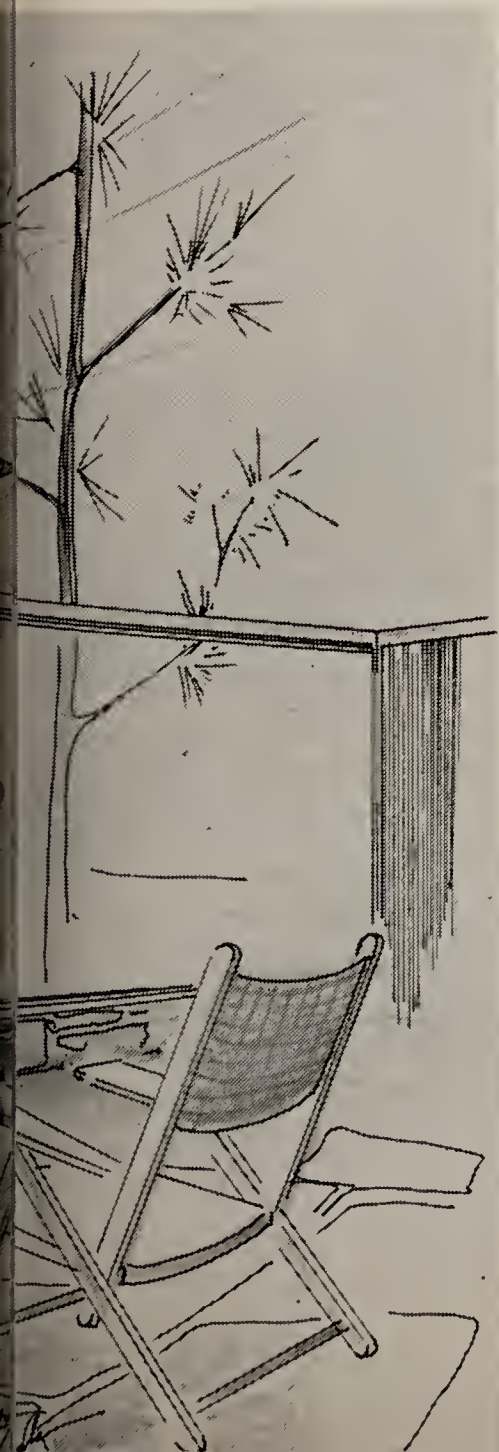




*A partial screen may differentiate one outdoor area from another, utilizing color, textured panels and potted plants.*



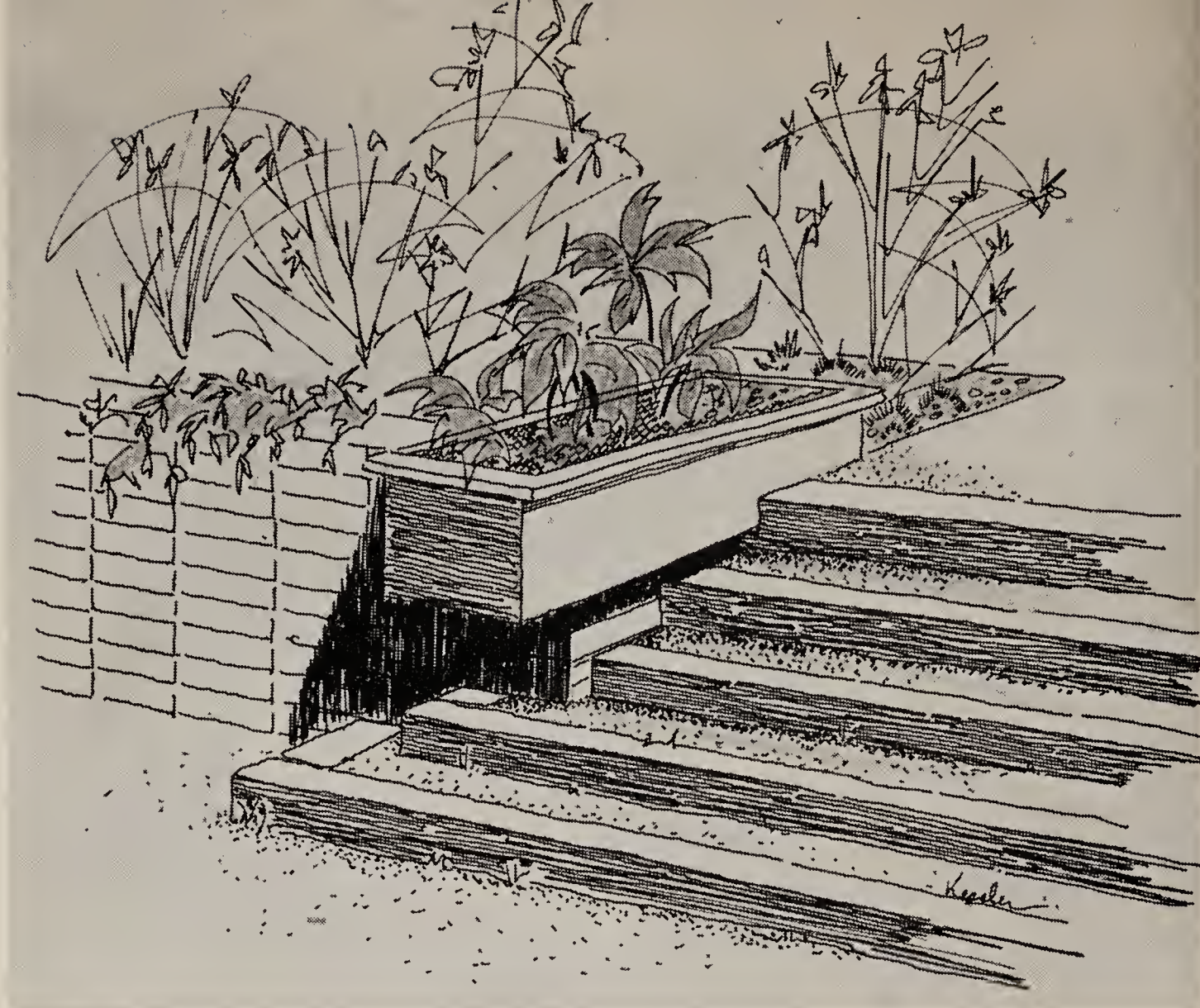
*comfort by controlling the window wall.*



In the past greater dependency and emphasis was placed upon the use of landscape planting for vertical elements of the garden. This in turn requires more space and, generally does not have the needed versatility, contrast or active interest throughout the entire year. With the use of structural materials and landscape planting within the garden, space may be greatly conserved. Each material will create interest and supplement one another throughout the year.

While vertical elements within the garden may be used to define space and areas, they are more commonly used by home owners for psychological property enclosures and barriers to passers-by. This is frequently misconstrued as a protection from within or from without. Walls, landscape planting and topographical barriers





*Ground levels and planting may be the needed vertical elements of the garden to integrate indoor-outdoor spaces into one design.*

suggest physical changes in movement and will only impede progress from the standpoint of time.

The utilization of fences or hedges for privacy from visual trespassing is one of a number of uses they may serve. In order to ascertain the proper height and achieve privacy the vertical element must be above eye level and of a material that is opaque or semi-transparent. The innovations, imagination and adaptability of materials by the designer to obtain the desired privacy for the home owner have proven in the past to be very useful and interesting throughout all seasons of the year.

Another function a vertical element may provide for the home owner is the control of climate. This type of control is more aptly classified as "microclimate" or small weather caused by natural phenomena, man-made innovations or structures. The most common example is the protection of outdoor activity areas from undesir-

able wind during the day and early evening. The fence construction may be of a variety of materials depending upon the function of the outdoor areas and the degree of wind protection desired.

An important view may be preserved with the installation of glass panels and other materials best suited for this type of construction. Other outdoor areas may be protected from the wind by using panels, louvers, solid fencing or masonry construction. The result may be achieved with a variety of materials—the cost, of course, is dependent upon the type of construction.

Surface textures, ground patterns and vertical elements of the garden create and define space, identify areas for outdoor living, service, activity and play. Imaginative design and the nature of materials used provide interesting and enjoyable multi-purpose areas harmonious to the over-all property design.



## THE EVENT OF THE YEAR!

*Dr. Lewis C. Chadwick's Show  
at Phipps Auditorium*

Yes, I mean just that—this will be the event of the year here in Denver! It isn't often that we are favored with the visit of an internationally known horticulturist, an author of two books on horticulture, an authority on these subjects, and when he consented to come to Denver, we decided to have him here in conjunction with the Men's Garden Clubs of America Convention to be held in June. Dr. Lewis C. Chadwick is a young man, born in Randolph Center, Vermont, August 13, 1902, and from all appearances, he became interested in horticulture at any early age, for his entire academic life was pointed to that section of learning.

From 1925 when he matriculated from University of Vermont with a B.S. degree, to date, as Professor of Horticulture, Ohio Agriculture Experiment Station, Ohio State University, there is one degree after another added to his first one. His interest in research was responsible for his being awarded the Norman Jay Colman Award in 1951. This award is sponsored by the American Association of Nurserymen and awarded for outstanding contributions to horticultural research.

As the need arose, he prepared and published ten bulletins dealing mostly with selection and use of woody plant materials, arboriculture and plant propagation. During this same period (from 1929 to date) he also prepared over thirty-five technical papers on the same subjects. As all must who are good in their particular fields, he gives an average of about 15-20 talks each year to nurserymen's associations, landscape associations, and ar-

borists groups throughout the United States. Among the societies to which he belongs are, American Society for Horticultural Science, National Shade Tree Conference (executive secretary, 1937 to date), American Rose Society, American Association of Botanical Gardens of America, and many more.

August 29, 1952, Dr. Chadwick was sent to the British Isles and Europe, on a trip of the various gardens, botanical areas, growers of nursery stock in Holland, Germany, Switzerland, Italy and France. On this trip he had seen a lot of country, places and people, took over 600 kodachrome slides and nearly 1000 feet of colored movie film. These he proposes to bring with him on this trip.



*Dr. L. C. Chadwick*

Don't forget, June 10, 1954, 8:00 P. M., at Phipps Auditorium, Dr. Chadwick will be lecturing, and showing his pictures, all sponsored by Colorado Nurserymen's Association, Men's Gardens Clubs, Denver Botanical Gardens and Colorado Forestry and Horticulture Association.



## POTTED ROSES LEND SPECIAL FASCINATION TO GARDEN TERRACE

*Have a Portable Rose Garden*

By HELEN FOWLER

**P**UTTING roses in pots allows you to remove them from the close-up scene when they are not in bloom and to use this display space for other kinds of plants that are in flower.

Any type of roses—tea, hybrid tea—can be grown in pots, but floribundas are best; their bloom is heavier and they do not require much care. Potting, in itself, has been practiced for years by nurserymen to use “left-overs” and also to supply plants for rose beds, made late, when it is not advisable to plant naked-rooted stock.

The size of the container is important. A rose must have at least one quart of soil, but should have much more to do its best. The well-known “Cloverset,” a tar product, has been used for years. Tin cans have been employed by some, but it seems to me these could be made attractive by painting or, better still, by roping with the rather new, heavy, waterproof cord, much used for pool and terrace furniture this past year.

Roses should be ordered and potted early in order to have them in full bloom, when the family takes over the terrace for the summer. On arrival the plants will have many more roots than needed. These should be trimmed with sharp pruners, leaving two, three and four of the sturdiest roots and three stems left at the top of the plant, each about 6 inches long. In planting be sure the graft bud is at least 1½ inches below the surface of the pot. The soil should be of the very best with 25% peat moss added; this helps to make good roots to start the hot weather later. Spread the roots out on a small mound at the top of the pot and watch out

for air pockets, as you continue to fill the pot. If this potting can not be done at once, plunge plants in water and hold wet until planting time.

Soak the soil thoroughly at the first watering, and add no more water for a day or two, no matter how hot the weather, or until soil is thoroughly dry. Dictum of an expert on roses—“They must wait for water to drain when they can grow and absorb food.”

The pots should be moved to some sunny out-of-the-way place where care can be given them preparatory to their display.

One of the best rose-foods is mixture of two cups of complete plant food added to one gallon of water. Give each plant one pint of the liquid at least once a month as a great deal of food is lost through watering. In cutting dead roses remove the withered flowers just above the uppermost leaf that contains five leaflets. You might get another bloom in from six to seven weeks.

If all the above points of culture are carefully followed, for your mobile show, the curtain can be raised on the roses at the height of their beauty.

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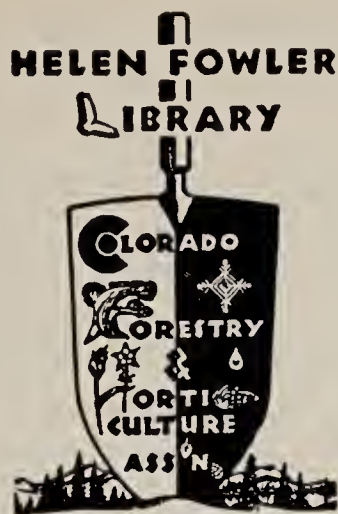
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## ALICE EASTWOOD

1859 - 1953

ON October 30, 1953, Miss Alice Eastwood died in San Francisco at the age of ninety-four years. In her passing the world has lost its foremost woman botanist.

Since her interest in Botany was fostered and developed in her early years in Denver, it is fitting and proper that some of the experiences of this remarkable woman be reviewed at this time in a Denver periodical.

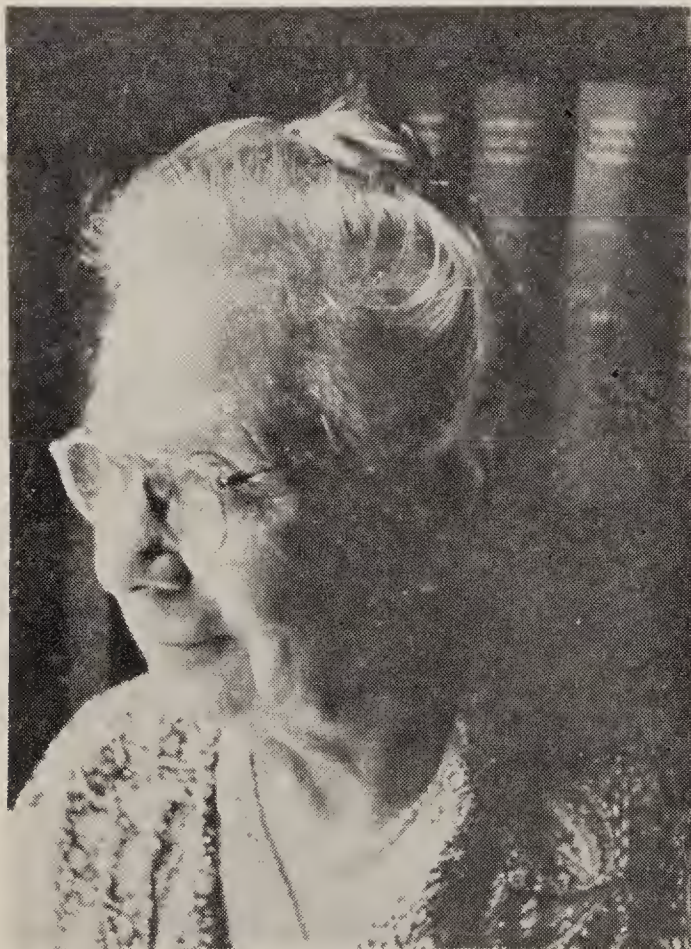
In the preface of her book, *A Popular Flora of Denver, Colorado*, published in 1893, Miss Eastwood states: "This Flora was written with the sole aim of helping students to learn the names of the plants that grow around Denver. It has been made as simple as possible, and those characteristics only have been noted which seemed to separate a given species from allied forms." To us, today, the localities cited are interesting. They are on the

plains in North Denver, in Perrin's Meadow, along Platte River and Cherry Creek, Clear Creek near Berkeley, near Montclair, near Petersburg, Valverde hills, and University Park. These growing areas are now practically gone. In the years when Botany was taught at East Denver High School this book was found most helpful to students in preparing their herbaria.

Alice Eastwood was born January 19, 1859, in Toronto, Canada, of an Irish mother and an English father. When Alice was six, her mother died. For a time the three children (Alice the oldest; Catherine, four, and Sidney, 14 months) stayed with an uncle at his country place on Highland Creek. Here were planted the seeds of Alice's life long interest in botany. Her uncle taught her names of plants she never forgot.

At the age of eight, she and her sister were placed in a convent and the father took the brother west with him. In the convent, Alice was taught to knit, sew, crochet, and cook, but the teaching standards were low and reading restricted to lives of saints. In the convent garden she helped to weed, feed the chickens and gather eggs. A French Canadian nun instilled in her a growing knowledge and love of music.

When Alice was fourteen her father sent for her to come to Denver where he had acquired a store. To help pay for the construction of the living quarters back of the store Alice worked as a nurse girl for a Frenchman named Jacob Sherrer. When the two-year-old and the tiny baby were asleep, she enjoyed the books in the family library. During the summer on a camping trip with the family she came upon mountain



Alice Eastwood in her library. Photo by Dr. Max Giesecke.



meadows covered with summer blooming flowers. This experience was a revelation.

At home she kept house for her father. In September, 1874, she entered the old Arapahoe School. All grades from primary to high school met in this building. Anna Palmer, who later became principal of Wolfe Hall had charge of the eighth grade. She introduced Alice to the delight of choral singing, directed her reading and in one year helped her to catch up with her own age and to enter the next year, what was called the fourth class of high school. At the end of four years, she graduated as valedictorian of the class of 1879. James H. Baker, later president of the University of Colorado who was principal, directed her reading all through high school.

To earn her way during the senior year, she got up at four every morning to lay and light furnace fires in the school building. Afternoons from two to six and all day Saturday, she worked in the dressmaking department of a downtown store for \$12 a week. By basting linings in basques and working button holes, she managed to pay all her expenses. When graduation came, she wore a white silk dress made as a present for her by the girls who worked with her in the department.

A summer job in 1879 led to her first collection of botanical specimens. Through Jacob Sherrer she became shepherd to a flock of pre-schoolers whom she turned into little naturalists.

In the autumn she secured a position teaching eighth grade and high school Latin in East Denver High School. During the next few years she taught a variety of subjects, including drawing, natural science, history, English, American literature.

Her summers were spent collecting

plants in the mountains. She travelled by train, stage, buckboard, on horseback or on foot. Botanizing in the years before and after the turn of the century required enterprise and hardihood.

These specimen plants became the nucleus of the herbarium at the University of Colorado. Alice Eastwood's own work in the flora of Colorado was begun when she made her first real botanical discoveries in almost unknown territory. She preferred to travel alone, became increasingly independent and unconventional in action.

In 1881, she made a trip east and visited her uncle on Highland Creek and the convent of her early childhood. On her itinerary she visited the Gray herbarium and met Asa Gray in his own garden. The renowned professor, author of the Botany that had been her companion during her summers in the mountains, encouraged her and fired her with further botanical zeal.

She soon became widely known as a botanical collector and explorer. In 1888, during alpine flowering season, she guided the famous English naturalist, Alfred Russell Wallace up Gray's Peak.

From 1880 to 1890, Alice Eastwood taught at East Denver High School. At her own expense she published her book, *A Popular Flora of Denver, Colorado*, but lost a good deal of money on the venture. Perhaps for consolation, Alice joined a philosophy seminar held in the home of the Denver librarian, John Cotton Dana. Presently she was commissioned to arrange a botanical portfolio of the local plants for the public library. From time to time she sent carefully mounted herbarium specimens to her friends in San Francisco.

In the Rocky Mountain News of January 25, 1952, under the heading



"Fifty Years Ago" the following was printed:

"A flower display consisting of more than one thousand species of Colorado native flowers will be prepared by state botanists for the World's Fair. The collection will be modelled in the lines of the famous Eastwood Collection at the high school, which is estimated to be worth twenty-five thousand dollars."

After a short visit to San Francisco in 1891, she spent the summer in and around cliff dweller ruins in Colorado. Her "Notes on the Cliff Dwellers" appeared in *Zoe*, a biological journal, January, 1893. Her first article for the magazine was called "The Common Shrubs of Southern Colorado." It came in July, 1891, along with advice on "The Fertilization of Geraniums." The October issue contained an enthusiastic article on "Mariposa Lilies of Colorado."

At summer's end in 1892, Alice Eastwood was offered the salary of \$75 a month if she would come to the California Academy of Sciences as joint curator of Botany. Pleased with the opportunity to work with kindred spirits, she accepted and went to San Francisco in December, 1892. She was 33 years old, already recognized nationally as field botanist and essayist on botanical subjects. Later she became Chief Curator, a position she held for 57 years and also became editor of *Zoe*, the biological magazine.

During the earthquake and fire of 1906, Alice Eastwood became one of San Francisco's heroines. She is credited with saving complete Academy records and irreplaceable botanical type specimens which became the nucleus of all the botanical collections that are overflowing their space in Golden Gate Park. The feat was accomplished at extreme personal risk, while the Market St. building was collapsing. All her personal posses-

sions with the exception of a favorite pocket lens, were destroyed.

Following the catastrophe and until the Academy constructed permanent headquarters and moved into them in Golden Gate Park, Alice Eastwood spent six years in study at the great herbaria of the Smithsonian Institution in Washington, D. C., in the New York Botanical Garden and in Arnold Arboretum near Boston; also in London's Kew Gardens and the British Museum, in the University of Cambridge and in the Jardin des Plantes in Paris.

In June, 1912, she returned to San Francisco to participate in the opening of the Academy. When the North American Hall was completed in 1916, one of the first innovations introduced by Miss Eastwood was a living flower exhibit of native and cultivated specimens.

In the year of her retirement from the Academy of Sciences at the age of 91 she was invited to serve as Honorary President of the Seventh International Botanical Congress, in Sweden. She went alone by air. Her happiest moment there came during a day of pilgrimage to the home of Linnaeus, when she, small and frail, was allowed to sit in the ancient chair which he used while writing the source book of modern systematic botany.

In the same year, 1950, in Denver East High School celebrated its 75th Anniversary. Alice Eastwood, the oldest living graduate was invited to attend and she regretted that she was unable to do so. She, however, wrote an interesting letter and made a recording for the program.

In January, 1953, the California Historical Society honored Miss Eastwood on her ninety-fourth birthday. In June of this year the Academy announced that the Hall of Botany was henceforth to be called "Alice



Eastwood Hall." A beautiful Redwood Grove in Humboldt Park now in the process of purchase has been named the Alice Eastwood Grove. A wonderful living memorial.

Through lecturing, teaching and writing, Alice Eastwood has attempted to foster in others that love of flowers which she felt herself. Her published writings are many and varied, including numerous popular botanical and horticultural articles. More than three hundred scientific treatises bear her name and extensive botanical collections place her among the foremost scientists in the country. She is the only woman whose name has been starred for distinction from the very first edition in American Men of Science.

Alice Eastwood was always alert

and friendly, interested in her fellow beings, frequently helping those who were in need. She kept in touch with those whom she had known through the years. Each time she returned to Denver for a visit she never failed to see the friends of her youth. Quoting from the foreword in a forthcoming biography: She was "a blithe spirit that is ageless, living in a world of discovery that is ever new."

For future reading:

Dakin, Susanna Bryant. The Perennial Adventure, A Tribute to Alice Eastwood, 1859-1953, San Francisco, California Academy of Sciences, 1954.

Wilson, Carol Green. Alice Eastwood's Wonderland (now in preparation), San Francisco.

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## INFILTRATION BY UNDESIRABLES

By M. WALTER PESMAN

**H**ALOGETON is expected to get a footing underground in Colorado. We should make a real attempt to keep it out and to eradicate it. Halogeton is a new noxious weed, which has been reported from Fruita in Mesa County, by the Bureau of Land Management.

It looks something like our well-known Russian Thistle, having tiny, sausage-shaped leaves from one-fourth

to one inch long. Each leaf is tipped with a delicate hair-like bristle, unlike the tapering sharp, spine-like bristle of Russian thistle (tumbleweed). It was found on the railroad right-of-way and on adobe land north of Grand Junction.

Introduced from Asia, it is now spreading from a focal point in eastern Nevada. Colorado is getting it from eastern Utah.

What is its danger? It is highly poisonous to sheep, due to the presence of an oxalate; this causes a sensitivity to light, called fagopyrisis or photosensitization. Large losses have been reported in other states not so far in Colorado.

If we really want to stop the progress of these undesirables (and we do), it is a fairly easy process. Heavier forms of 2,4D and 2,4,5-D knock it out and, as an annual, it is just a matter of controlling it from going to seed.

Danger spots to be watched are, naturally, those places closest to known places of infestation.

*Pictures used here furnished through the courtesy of the Colorado A & M College and Idaho and Utah Experiment stations.*





The full name, *Halegeton glomeratus*, indicates its growing on alkaline soils, and its flowers being in crowded clusters.

Anybody knowing of the whereabouts of these undesirables is urged to notify the proper authorities, in this case the county agent or Bureau of Plant Management. Further information can be had from these sources.

### Additional Committees Appointed

**MEMBERSHIP:** Mrs. R. M. Perry, Mrs. John MacKenzie, Co-Chairmen; Lemoine Bechtold, Mrs. Henry Conrad, Mrs. George H. Garrey, Dr. A. A. Hermann, Mrs. Frank McLister, Mrs. J. V. Petersen, Mrs. P. D. Whitaker.

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**WILDERNESS AREAS.** About 1% of federally owned land is in wilderness areas, recognizing as being of great value for future scientific study, yet constantly threatened by mining, grazing, lumbering, reservoir flooding, and demands for recreational use. The need for smaller local areas of scientific importance was stressed. The fact that wilderness areas are under the supervision of several different bureaus tends to confusion of management and weakness in control.



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## SOIL CONDITIONING

By DR. A. A. HERMANN

ALMOST all of us have been thrilled while hiking through the deep forests at the resilient springiness of the soil, not unlike the sensation of stepping onto an innerspring mattress. We've marvelled, too, at the delicate exotic growth of lady slipper—native Colorado orchid, violets and columbines that made it look, as well as feel like a Persian rug. Plants, flowers, shrubs and trees rooted therein do not pout and die but are happy and grow thriftily in spite of the periodic intervention of severe winters with deep snows alternating with blistering hot and dry midsummers.

Such soil is like a vast sponge that conserves nature's resources and moisture, and releases its vast stores of nourishment and moisture as needed by the thriving carpet of plants thereon.

Have you ever considered the possibility of making the soil under your lawn and in your garden somewhat like this forest soil; resilient, soft and spongy, easily cultivated and moisture retaining, more like the forest and less like the pavement? It can be done.

The cost is not prohibitive and the reward for your labors is a never ceasing joy and pride of achievement that is beyond expression. If you are skeptical dedicate one-tenth of your garden to this, and pick one corner for a trial or test ground remembering that such elements as sunlight, proper drainage, consistently applied moisture and periodic cultivation are absolutely essential to success.

Don't expect a "presto-chango" result in a week or even in one season. It takes time and a generous portion of elbow grease to transform the face of mother earth in areas that have

been mined for years by the annual removal of resources, by erosion, by crop growing, soil packing, and lack of any attention to fertilization, crop rotation, pest control, landscaping or other conservation.

Humus may be introduced in the soil by generous portions of compost made from the previous season's plant trimmings, weeds, sod removed in edging lawns, grass clippings, vegetable and fruit peelings, hay, straw, corn stalks and any other cellulose material properly processed in a compost pit or container.

Leaves, after a season or two, in a dense pile properly moistened and compacted until they have become almost unrecognizable as leaves, but look more like crumbling dark rich soil, is nature's oldest and best compost and is readily procurable by those who note where each fall crop of fallen leaves is dumped by the City Sanitary Department.

Manure from some nearby dairy farm or riding academy is very desirable. Peat moss imported from Canada or Michigan or from the peat bogs of our mountain valleys is worth all it costs in making a seed bed through which tender shoots of plants may sprout and grow, not die under an impenetrable crust of baked earth.

A heavy clay soil is vastly benefited by the addition of a third of coarse sand and one may also add a reasonable amount of vermiculite (an expanded mica product) or what is even better a product called alsonite which is light as a feather and is made of grains of silicate, which have been exploded like popcorn. Each minute ball will retain a large amount of air and moisture which the delicate root fibers can readily appropriate.

All these components should



very thoroughly mixed into the soil by repeated spading or the use of the modern rototillers. A soil grinder is ideal for disintegrating the product of the compost pit or the large lumps of decomposed leaves through such a grinder is by no means an absolute necessity as nature will adequately care for any compost mixed into the soil.

Many gardeners also practice putting a one to two inch layer of leaves on top of the soil as a mulch, claiming that such a soil cover discourages the growth of weeds, keeps the soil warm and moist and encourages the growth of roots close to the surface. Ultimately such a mulch will become mixed with the soil so may be renewed annually.

Most fertile soils contain reasonable amounts of nitrogen, of calcium phosphates and of potash in addition to a multitude of trace elements such as iron, copper, magnesium, manganese, sulphur and boron. A large proportion of our local soil is deficient in phosphate and so a heavy feeding with treble superphosphates which is slowly assimilated, may be given.

As our water and soil are naturally decidedly alkaline a smaller proportion of potassium sulphate or wood ashes is required than is needed in areas that have an acid soil.

Some plants like a neutral or slightly acid soil; such are roses. Others such as rhododendrons, azaleas and blueberries are difficult to grow unless the soil is converted, by the addition of a large proportion of oak leaves, to an acid consistency.

Plants thrive especially well if fed at intervals of ten to twenty-one days with a well diluted mixture of Ortho-fish emulsion or ammonium sulphate solution. Such foods may be conveniently fed through the foliage if a gadget called a hozon is screwed onto the faucet before the hose and sprin-

kler nozzle are attached. This has a suction tube reaching down into a bucket containing a half pint of emulsion or nitrate and three gallons of water. Through the suction tube, one portion of liquid food is sucked up and mixed with ten parts of water while the spray is directed onto the foliage and surrounding ground. None is wasted as the roots quickly assimilate whatever subsequent watering soaks into the soil.

Your compost heap or pit will be benefited by the occasional addition of a pound of powdered sulphur or a couple pounds of granular ammonium sulphate. The heat and fermentation generated in the development of producing compost material completely destroys any weed seeds.

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## OUTDOOR EDUCATION FOR ADULTS

From a Talk by ROBERTS MANN

Conservation Editor, Forest Preserve District of Cook County, Illinois,  
at Great Lakes Park Training Institute, Pokagon State  
Park, Indiana, February 22, 1954

**G**REAT masses of the American people do not know how to enjoy themselves out-of-doors. They have no roots; no sense of kinship with the land. They are utterly or relatively strangers in a wild or semi-wild environment. They are incurious. They are apathetic. They don't give a damn about scenic beauty nor about the birds and the bees. Or they are afraid—literally afraid. What little knowledge they have about things in nature is colored by misinformation and distorted by fear.

It is our job to teach people how to use and enjoy their own property

intelligently. We've got to get them out on their feet, walking. We've got to make them feel at home there *and open their eyes*. We've got to teach them to be friendly with all living things, and demonstrate what fun they can have without destroying. Fun and adventure—that they go for. We've got to teach them to be humble and tolerant; that man is only an animal that remembers and that everything in nature has its function and its right to exist; that man is utterly dependent upon the land for his food, clothing and shelter; that the soil is the base of our economic, political



and social pyramid; that man and nature are inseparably bound in a seamless web of interrelationships and interdependencies encompassing soil, water, minerals, plants and animals. Then, and only then, you can start talking about conservation of our natural resources, including conservation of our scenic and recreational resources—such as parks.

The problem is how to tickle their bumps of curiosity so as to arouse their interest in the out-of-doors, natural phenomena, and the wildlife that grows, crawls, swims, flies and runs. About all you can hope to do with some people—too many—is teach them good outdoor manners. But if you can somehow get to them, most people have a soft spot: you can interest them in something, be it fishing, waterfowl, snakes, wildflowers, trees, pebbles, Indian ways and

artifacts, or the question of foxes versus pheasants. And we have found, that nature appreciation, engendered by nature lore acquired firsthand, converts most folks into good park-users with good outdoor manners. Further, it is the key to the door opening upon a concept of the broad field of conservation. That concept is essential to good citizenship, wise use of public property, wise use of all our natural resources. An intangible by-product for the individual is more profitable use of his leisure time and a fuller, richer life.

More cities should provide more facilities, easily accessible to the "unleavened masses" which will enable them to enjoy unregimented voluntary outdoor activities, and freedom and peacefulness of native landscape, and that great spaciousness which they need but are otherwise denied.

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## MERION BLUEGRASS IS WORTH THE PRICE

By MR. AND MRS. W. F. LAIRSMITH

TWO years ago we were faced with the problem of putting in a new lawn. We, like many new homeowners, decided to do a portion of the job ourselves. One of the first things to confront us was the type of grass to use. We had read excellent reports on Merion Bluegrass, but the question in our minds was, "Will it be worth the difference in price?" Furthermore, the articles mentioned only the eastern areas where it had been grown successfully so this presented another question, "Will it do well in the Rocky Mountain region?" However, after much deliberation, we decided to try it.

We have now lived with our Merion lawn approximately two years and believe that perhaps we are qualified to make the following comments regarding it. It is the most rapid spreading, dense, compact, and wear-resisting grass we have ever seen. It forms a deep carpet-like turf which is a pleasure to walk upon. The color is a long lasting dark green and it thrives in this climate as though it were meant for it. The grass blades are shorter and wider than Kentucky Bluegrass and they have a tendency to grow sideways rather than upwards. It is a healthier and sturdier plant with well developed roots reaching twelve inches or more into the earth. While it is too soon to draw definite conclusions on the following lawn problems, we have not yet been bothered with crabgrass, summer browning, leaf spot disease or clover mites. We believe it to be a superior strain of grass and worth the higher price asked for it.

The initial high cost can be greatly reduced by the fact that you can sow

it much thinner than other grasses. One pound of Merion Bluegrass per eight hundred square feet will give adequate coverage. We stayed fairly close to that figure and got a tight turf using that ratio. The only drawback in planting that thinly is the difficulty in sowing it. Your time and patience will be heavily called upon. I will outline how we did it and then you can take it from there and perhaps improve upon our method.

1. The first step was to have the ground leveled and contoured making sure the land sloped gradually away from the house in all directions. This work should be done by someone specialized in lawn contouring. Our soil being a heavy clay type made it necessary to have liberal amounts of organic matter in the form of well rotted manure rototilled into it.

2. Next, my wife and I took over by preparing a well pulverized seed bed using a rake and a small wood drag to again level the soil. To this we applied a balanced chemical fertilizer at the rate of four pounds per one hundred square feet and raked it in to a depth of three or four inches.

3. After completion of the seed bed we staked it off in twenty foot squares (400 sq. ft.) using string to enclose the square. As my wife carefully sowed this area by hand with one-half pound of Merion seed, followed by covering the seeds with an even layer of pulverized cow manure, immediately rolling it with an empty roller to press seeds firmly into the soil. This was May 10.

4. For the next two weeks we kept the seedbed moist and avoided puddling. The fourteenth day we saw the first shoots of Merion. It was ver-



sparse at first, but in six week time it had developed into a thick turf.

We also seeded some in September, which grew well. We would not recommend seeding much before May or after August, as the seed does not seem to germinate well in cool soil.

Although the time expended on this may appear discouraging, we believe it has been worthwhile since a good lawn is a lifetime investment.

The rose is the most important ornamental plant in the United States, according to the American Association of Nurserymen. The popularity of the rose plant for home gardens grows continually from year to year.



*Tulips, Snowmen and Lilacs. George Kelly said it, "Rocky Mountain Horticulture IS Different." Drawing by Pauline Roberts Steele.*

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## SOME LIKE IT HOT

By SAM L. HUDDLESTON

Landscape Architect

LIKE the American people, American gardens have come from all parts of the world. Italy, France and Spain have contributed our inspiration for the formal type while England was the source of our naturalistic or informal gardens.

With the great variety in architecture that we derive from the old world and all the variety in climate and topography in this country, we naturally have used all types of garden design, adapting these to fit our own needs. Even if we wanted to we couldn't make a true Italian garden in Colorado. Italian cypress and ilex trees do not grow here. Neither do we grow the boxwood so characteristic of old gardens in Maryland and Virginia or the azaleas, camelias and live oak of the deep South. But we have our own silver juniper and spruce, our own columbine, thimbleberry and alpine plants and our own native sandstone and other materials, plus a climate more suited than most to outdoor living. The use of these native materials in garden building will give a distinctive character.

For the limited land area available at most places today, it is often advisable to hold to a formal arrangement. This does not mean stiffness or fussiness but a simple orderly plan, carefully but loosely organized in the modern sense. Many of the small, unpretentious colonial gardens are related to modern gardens in their careful apportionment of a small space. The lot lines and the lines of the house determine the main lines of such gardens. They look like the outdoor living rooms they are intended to be. The garden furniture and family accessories that people want for outdoor

enjoyment and living may be fitted into this kind of plan.

In the design of modern garden it is usually a distinct advantage to have a lot which is not exactly rectangular. The unusual lines resulting from an unsymmetrical shape offer an opportunity to secure unusual and different effects not possible when the controlling lot lines are "cube shaped."

When you get right down to it any choice in garden style is like the old porridge song "some like it hot, some like it cold, some like it in the pot 9 days old."



*The wonder of it all to me  
Where can these Early Wonders be?  
Drawing by Pauline Roberts Stearns*

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## ROSE GARDEN DESIGN

By MAURICE N. MARSHALL

From a Talk given to the Rose Society, April 8

A QUESTION which enters the mind of almost every purchaser of hybrid tea and floribunda roses, is the matter of where to place them to get the most in appearance from them, for rarely does one derive much benefit from random or occasional planting of roses where no group design is followed.

Beauty in roses comes almost exclusively from their use in beds, or at least in massing of the plantings in some manner or other. These beds or groups should be in open, well ventilated situations away from tree roots and other competing plants. They can take on the appearance of formality by the use of straight line or symmetrically balanced, carefully designed beds, or they can be grouped as filler material to other larger growing items of roses or shrubs, or adjacent to the foundation of the home. This latter, being particularly suited to the use of floribundas. In every instance, however, they should always be kept under clean cultivation, both for good health and good appearance.

Although some people may need help in making proper use of their roses, the problem is really not difficult and most persons, if they give a little thought to the design, can work out nicely arranged and well balanced patterns or bed arrangements from the most elementary squares, circles, ovals or rectangular designs. The shape of the area in which the rose garden is to be situated should be the deciding factor of the rose bed. For example placement of circular or oval beds usually is governed by the nature of the area in which the bed is to be placed such as circular or curved walks or informal shrubbery,

backgrounds or settings, whereas square or rectangular beds are usually used in conjunction with area bounded by straight lines such as buildings, walks, drives, etc.

If one is to go into a somewhat more elaborate design it would have to include such other features as possibly a main axis walk and possibly a terminal feature backed up by some sort of formal hedge or evergreen background and should have some semblance of enclosure, probably a small formal hedge skirting the side of the garden area. Small gardens usually are limited to one or two roses of each variety whereas large gardens may have eight, ten or dozen roses of each variety worked in as a mass planting. It is obvious that there is actually no limit to the designs that can be worked out. However, the simple arrangements touched on above are the basic ones in principle for most all rose gardens.

---

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*Verses by Margaret Janosky. Drawings by Pauline Roberts Steele.*

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be around 1200 years old. It is interesting to try to imagine who posed for them, what sort of person they were, how they made them and what kind of paint they used. Small pictures show some of the ruins near where these people once lived.





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## THEY WORK WHILE WE TALK

**T**HE girls shown working here are members of the Senior Girl Scouts of Metropolitan Denver. (A group of about 400 girls 14 to 18 years of age.)

These girls are Senior Scouts who are working on the Ranger Aide Program; a training program furthering their knowledge in the out-of-doors

— conservation in particular, and beautification.

This is also a service project, as well as a training program, and was set up by the Senior Service Chairman, Mrs. Doris Weith.

It is their hope to establish some roadside parks or picnic grounds on the new highways out of Denver, keep them clean, help control erosion on the new cuts; and also to beautify these places with trees, shrubs or plants where appropriate.

They also hope to use their knowledge (and muscles) to further conservation at their three camps: Flying "G" Ranch and Tomahawk Ranch in Park County, and Twisted Pine in Clear Creek County.

Mr. George Kelly is working with the girls at present, and it is our hope to get other experts to give us a little time and training in the future.

This project was pioneered by troop No. 104. It started as a clean-up project originally, but the possibilities are endless.



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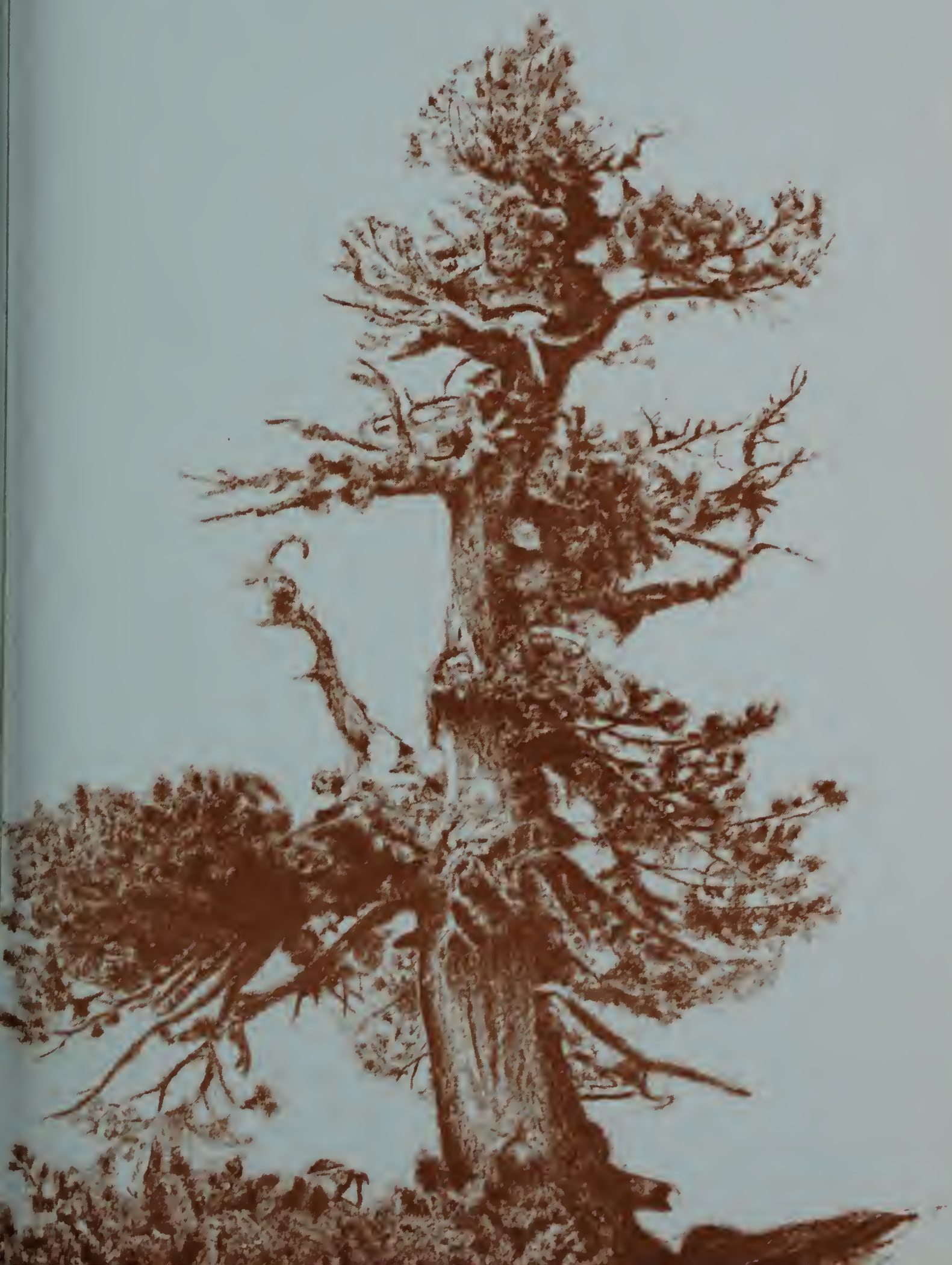


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## *President's Letter...*

DEAR MEMBERS OF OUR COLORADO FORESTRY  
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If you believe in—as I hope and assume you do—the aims and objectives of our Association, would you kindly give a few minutes of that precious commodity “Time” to help your Officers and Directors who are trying to make the Association strong and of real value to all of us who live in our glorious State of Colorado.

### MEMBERSHIP IS THE LIFE-BLOOD OF ANY ORGANIZATION

There are literally thousands of newcomers in our City of Denver and in our state. There are thousands of new homes, new grounds needing planting.

Most of you surely know of at least ONE person who would be glad to know that they could take Garden problems somewhere, have the use of a splendid Horticultural library, receive twelve copies of Colorado's own magazine “The Green Thumb.”

Won't YOU make a sincere effort to secure ONE new member for us, using the application blank at the bottom of this page?

I will be deeply grateful for your help.

Sincerely,

FRED R. JOHNSON.

### COLORADO FORESTRY AND HORTICULTURE ASSOCIATION

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# The Green Thumb

Vol. 11

JUNE, 1954

No. 6

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*Drawing on cover by George Willis*

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## LOOK AND LEARN GARDEN VISITS

After the May garden visit, aren't you looking forward to the June LOOK & LEARN Garden Visit? I am! I have seen these gardens early in the season before any blooms had come out to be frozen back by that May freeze, and now I'm anxious to see how they have recovered, and the interesting new things which have come on! So—we'll hope you will all go on Sunday, June 27, 1:00 to 7:00 P. M. to the following gardens:

The garden of Dr. and Mrs. T. E. Best, 345 Jasmine Street, is one of the newer ones, very formal with many nice trees and all kinds of plant material. The back garden is where they live, however, and that is what you should see!

Bertie Bieler, 421 Josephine, has one of those delightful, modern little gardens, with an arrangement that should please many of the new home owners who have the problem of strictly modern style home and no apparent plan on how to landscape it. This will give you some of the answers.

In the Touff's garden (Mr. and Mrs. David S. Touff), 717 Pontiac, you must come prepared to enjoy shade, peace and quiet, for as you wander around under the trees, in such heavenly shade, and see what they have done with this older garden, you will be glad you came. Don't miss the small fruits tucked in out of the way corners, and out in the parking!

Another example of modern gardens is that of Mr. and Mrs. Louis Degen, 75 South Elm. This new place is on the northwest corner, with a south exposure, and rather than wait for a hedge to screen their home from the street, they have had the most in-

teresting wall built, which is really something! I can't describe it, but that plus driveway treatment with its Russianolive tree planted right in the middle and planter boxes—have I made you curious?

The Clinton E. Woodends, 330 Ash Street, have another of those beautiful, older gardens, which you just must visit. A wealth of colorful perennials invite you to take an easy step from the living quarters out on to the patio which is definitely lived in, and there again, you will find examples of my favorite tree—the Russianolive—and other flowering shrubs and trees. Be sure to come here for a delightful afternoon visit!

The delightful Japanese garden made by Mr. Shiichi Fukuhara at 2824 California is worth the price of the whole series of tours. Mr. Fukuhara, now 74 and retired, made this garden for his own enjoyment; but at one time he was considered to be one of the leading designers of rock gardens in California. You will love the garden with its surprising assortment of interestingly trained plants and its rocks, pools and waterfalls; you will also love to meet Mr. Fukuhara, a man with a deep green thumb. If you think that lack of space restricts your garden activities come and see what has been done on a plot about 15 feet square.

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June Schedule

June 9. The Denver Rose Society will meet at City and County Building—Room 186, 8:00 P.M.  
June 20. Denver Rose Society spring Rose Show. Ford Motor, 2650 E. 40th. 2:00 to 6:00 P.M.

Rose Society News

Members of the Denver Rose Society and their guests were entertained by a talk given by R. V. Seaman, May 13th, City and County Building. Mr. Seaman chose as his topic "The Rose Grower's Plague."  
Mr. Clair Robinson, in charge of the Rose Garden at City Park gave a ten minute review on the progress and activity concerning the "Rosarium."

Our next meeting will be on Wednesday, June 9 (please note change in time) so that many of our members can attend the lecture given by Dr. L. C. Chadwick on Thursday evening at 8:00 P.M., Phipps Auditorium.

Many "rose enthusiasts" will be here attending the Men's Garden Club Convention. We will have some of them as guest speakers at our June 9th meeting. We hope many of you will take advantage of this opportunity to meet and hear these speakers.

Remember our show date—June 20, 2:00 to 6:00 P.M.—Ford Motor Co. This has proven to be one of the outstanding events of the summer. Public invited.

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## CHERRY DISCOVERS SOME OF THE CHARMS OF GARDENING

**J**UNE 5. Even though we did almost have frost last night, Decoration Day is past and I'm going to put out all those tender annuals that have been growing spindly indoors. Other people have set out tomato plants several times and had them frozen back. I'll get some of the larger plants now (if there are any left) and by taking good care of them I may catch up with the ones who were in such a hurry. Six weeks ago I was sure that spring was really here but the weather man has proven again that Rocky Mountain Horticulture is different.

It was fun planting out all those little plants. It made me feel as though I was mother to them all and they were my babies. The smell and feel of the soil when it begins to get warm is the best tonic that I know of. I don't even mind the dirt under my fingernails—its good clean dirt. I'm pleasantly tired tonight and bet I'll sleep like a log.

Too bad that Red missed out on the fun. He just had to go fishing. (I'll bet he was sleeping under a tree most of the day.)

June 6. I slept well last night and was up at daylight to see how all my little plant babies had stood the transplanting. Some of them had wilted down last night, but they were all standing up straight this morning and looking as though they had never been moved. I'll set up some old shingles to shade some of them from the afternoon sun.

Some of the leaves had been eaten off of several plants but I could find no evidence of any kind of insect. I'll call Dad Dendron and see if he can figure out what did it. \* \* \* Dad was out of town but I looked around again and saw the tracks of a rabbit, which I expect was the culprit. Guess I'll have to get a dog to take care of him—On second thought I'm afraid that if I get livestock around the place I'll not be able to run off to the mountains every time I feel the urge. After all the rabbit only ate a few leaves and I guess he is welcome to them. Going to the hills gives me an idea. Why not today. I'll bet that there are a lot of wildflowers out now. I'll leave my garden work for next week.

June 12. I guess that I should have stayed home last week for today I found all kinds of things wrong with my garden. Some patches were really dry (I guess I only watered a little there, earlier). Weeds were coming all over and I noticed at least a dozen kinds of insects starting their dirty work on my plants. I'll get Dad Dendron over to tell me how to get rid of them.

While Dad was spraying he told me a little about the different insects and what to do to control them. The most common ones were the aphids or plant lice. They were little soft-bodied insects that had a sharp beak that they stuck into the plant and sucked the sap from it. I wondered where they came from, but Dad showed me ants running all over the bushes where they were and explained how that the ants carry some kinds down into their nests in the fall and keep them till spring and then bring them up and plant them



on the kind of plant that they feed on. He said that they were the ant's "cows" and furnished a sweet fluid that the ants liked. There are sure a lot of interesting thing going on right under our noses if we have someone to explain them to us.

Dad also told of the chewing insects, the worms and beetles, and told how they were killed with a stomach poison like arsenate of lead or one of the new, powerful insecticides like DDT.

June 13. Mother was over this morning and I was so proud to show her around the garden and was telling her all about the chewing and sucking insects that I had learned yesterday. She discovered some little snail-like things on the cherry tree leaves and I could not tell her what they were or how to get rid of them. I'll call up Dad Dendron right now. \* \* \* He said that the insects on the cherry tree leaves were leaf slugs and were easy to control because they were soft bodied and so killed by contact sprays as were aphids, and as they also chew they were killed by the stomach poisons, and as they were a slug and dependant on the slime that covered them, that a dust of any kind thrown on them would be effective. He explained that they were different from the ground slugs which damaged so many plants in gardens which were over watered or had lots of shade and dense foliage on the ground.

June 19. Everything looks good this morning, but the work that needs doing almost scares me. I'm going to get Red to do some weeding, cut the lawn and fix that gate that has the broken hinge. I can watch him to see that he does a good job while I take out all the little weeds that are coming up all over. I'm not sure always which are weeds and which are the plants that I set out. I wish that someone would print pictures of the weeds when they were small, as we usually see them, instead of only mature plants, which should never be in a good garden. I'll get Dad to go down to Horticulture House and look through the weed books there and try to identify some of these pests I have. Possibly if I knew what they were and how they grew I could figure out how to control them.

June 20. Red was all in this morning from his exertions yesterday. I got up and looked over the garden as the sun came up. It sure looked pretty, with all the plants growing happily and no competing weeds or insects.

Mother came over this morning and saw some of the larger annuals that I had set out beginning to show a little bloom. She was quite disturbed that I had gotten some wrong color combinations. Dad was along and told her of what his old friend the florist had said, "Look out for the combinations of two or three colors, especially those funny colors like magenta and rose pink, but a conglomeration of all colors is always good." He said that he had noticed all kinds of "impossible" color combinations in the wild flowers and they looked all right. I told Mother that when more flowers were in bloom it would be a conglomeration and probably be all right.

June 26. It is amazing what changes can come to a garden in a week's time. Last week I thought that I had everything done that could be done in my garden but today it looks neglected again. Some insects are showing up again, so I think that I'll spray everything with a good all-purpose spray, then next time I see some I'll try to figure out exactly what they are and spray just for them. There are dry spots again that I must soak. It must take at least ten times the water on the south of the house as it does on the north.



That lawn that we put in about 6 weeks ago is looking "mighty puny" this morning. I'll call Dad. \* \* \* Here he comes now with Dad Dendron. I'll put the problem up to them. \* \* \* They argued for an hour and finally agreed on what the trouble was and what to do for it. When we can get a practical dirt gardener and a scientist together we can really get some answers. This was their story.

"The humus that we used in putting in the lawn, while it was very necessary was not completely decomposed and as we added water to the lawn it started a bacterial action that robbed the surrounding soil of nitrogen. This action is temporary and as the decomposing action continues it will return the nitrogen to the soil with interest; but in the mean time, a mild fertilizer containing mainly nitrogen would generally perk up the yellowing grass within a week or so."

I also asked them to advise me what to do about the weeds that were coming up in the lawn. They suggested spraying with one of the 2,4-D weed killers to get the dandelions, plantain and some others, and keeping the annuals like wild lettuce and the mustards mowed down until they became discouraged and quit. They argued that a lawn properly seeded and cared for would grow such good bluegrass that the weeds would have no chance.

June 27. Red was the first one up this morning. He went out in the garden but came back soon hollering that my garden was being eaten up with ants and grasshoppers. I went out in my pajamas and looked around. It was not as bad as Red had made out but there were ants all around and the tiny grasshoppers were surely massing up for attack. I called Dad Dendron and he said that we need not be bothered with either of those insects anymore because chlordane would get rid of them. That is a relief.

When I feel a little lazy and yet want to do something for my garden I get out the hand clippers and go around snipping a dead twig from the shrubs, a broken limb from the trees or a dead flower stalk from the perennials. I like to carry the clippers with me all the time that I am in the garden. Cleaning up things with the clippers is one of the pleasures of gardening, it seems to me.

This afternoon I thought that the garden was in fairly good shape so I decided to forget the work of gardening and have some fun.

I phoned Mother Dendron to ask her for the names of some of the books that she had found the most useful in learning the names and facts about some of the plants that I am trying to grow. She had just been down to the Helen Fowler library at Horticulture House yesterday and taken out several books, so she brought them over and we had a wonderful time trying to figure out the correct names of some of my new plants. I believe that plants are a little like people. The more we get acquainted with them the more we want to know their names and all about them and their families. After we had read and studied most of the afternoon I felt much more interested in my garden for each plant took on an individuality and seemed like an old friend. This gardening business bewildered me a couple of months ago, it all seemed so mysterious and complicated, but I am already beginning to feel a little more of the charm of working with growing plants and can understand how enthusiastic some of the older gardeners get. I believe that I will talk to that new girl that moved in next door and see if I can't get her interested too. She seems so lost and lonely.





## OUTDOOR TRIPS

The whole Association as well as its hiking members are regretting deeply the resignation of Mrs. Anna Timm, "Timmy" to us, as Chairman of the Outdoor Activities Committee. For six years Timmy has planned for and led, cared for and fed, both campers and climbers on literally hundreds of interesting trips into the mountains of Colorado and neighboring states.

Now she feels it is the turn of some other members who love the out-of-doors to organize and direct these trips. The committee can continue to function if it has a capable chairman and the support of the membership.

There is a wide field open to suggestions for new and different trips—suggestions that should be made and acted upon by the people who have enjoyed past trips or by people who would like to conduct future trips.

So come on! Step up and communicate your ideas to Fred Johnson, President of the Association at Horticulture House, 1355 Bannock St.

CHARLOTTE A. BARBOUR

## CONSERVATION NOTES

In the quiet of fields or in the green fastnesses of a mid-summer forest it is hard to realize that a perpetually energetic cast is putting on a scene of that vast production we lightly call "Nature." Under and in the soft carpet of moss and fallen leaves; in and under the bark of stately trees; above, and in the seemingly motionless leaves is unceasing, furious activity. From *The Web of Life* by John H. Storer.

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Where men gather in cities the rain which falls on them could not satisfy their needs, even if it were saved, which it is not. Does it seem unreasonable to suggest that matters of high policy which affect the water economy of rural America, whence comes both our food and our water, are very much the business of the city dwellers? —From Dr. Paul B. Sears, commenting on soil conditions in *Conservation*.

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If spring keeps on developing faster and faster, as it has in May, there is a danger that fall will overtake it in June.



## MY CHIEF CLIMATE PROBLEM AND WHAT I DO ABOUT IT

By M. WALTER PESMAN

"WELL, if I were a plant," she said, "I'd want to live in England, but since I am a human being, I prefer Colorado. The apt remark came from Mrs. T. D. A. Cockerell, the charming English-born naturalist and wife of the bee-expert and botanist, Professor Cockerell of Colorado University.

What can one do about a climate that turns so many of our pre-conceived ideas about gardening upside-down? Accept it, of course, and turn a handicap into a triumph!

I was introduced to gardening in Holland, a country where rain is taken for granted, where plants "just grow," where a sour soil is a factor that is combated by the addition of lime, where good drainage is a virtue difficult to achieve.

"What, no rhododendrons? No deutzias? No beeches? No Wistaria?" It seemed at first, as if proper gardening here was hopeless.

And yet, there were beautiful gardens: unexcelled petunias, Russian-olives, lawns like nowhere else in the world, new types of shrubs, and a wealth of conifers! Even the simple process of sprinkling added a picture of fountain display, accomplished only at large expense in Versailles, and in large country homes.

Before long I experienced a sort of conversion: suddenly I began to appreciate these unusual opportunities. Here was a chance to create new effects: a garden picture in which the blue sky could be counted on as a permanent feature, a tone value of colors, which gravitates to the silvery-blues, instead of to the yellow-greens. Here the brilliant sunshine brings out

bright colors in their full intensity. Instead of delicate pastel-shades that Holland and England boast of, we can have bold reds and yellows, in strong contrast with dark masses of conifers. Here is modernistic painting come to life!

And the maintenance possibilities! Think of having an ever-ready hose to help out in even the least sign of thirst, indicated by a choice plant. Think of being able to count on sunshine and heat in summer time! What a joy to grow all sorts of cacti, sedums, yuccas, and many kinds of rock plants and drought lovers!

Here in the Rocky Mountain region we are creating a new type of garden. No, two types: the small, irrigated type in which plants can be cared for as individuals, and in which many kinds of exotics can find a place—and the naturalistic type, consisting of native plants mainly, plants that have become inured to a climate that is difficult in many ways. Skunk-bush, yucca, and Ponderosa pine have accommodated themselves to long periods of drought, to warm summers and cold winters.

What takes the average newcomer longest is to realize that an alkaline soil is the rule here, and not the exception. Again and again one is apt to try flowering dogwood, rhododendron, boxwood, and yew, with the theory that those plants do well even a lot farther north than Colorado, and especially than New Mexico.

But plants do not grow by such theories. If they want a pH of not more than 5 or 6, and prefer pH 4, you can't coax them into accepting our alkaline soil. Likewise, if they



are used to a moist atmosphere, no amount of water supplied to the roots will make up for surrounding air that is low in moisture.

"What to do about it?" We humans are prone to "fix things up." And the first tendency is always, on the part of newcomers to this region, to try and make the soil more acid, to supply more moisture, to protect plants from the harsh sun and from cold winter days.

It can be done to a certain extent. Aluminum sulphate, iron sulphate, tannic acid, peatmoss, all these help. And they do some good in growing such trees as oaks, tuliptrees, hickories

Then, after a little while the surrounding soil solution undoes our efforts; even the irrigation water is alkaline, and the dry climate again concentrates various salts in the upper soil layer.

After having struggled against climatic conditions with the resulting puny plants that "have done their best," we are apt to become more philosophic and decide that it is a great deal easier and pleasanter to work *with* nature than *against* it. This does not necessarily mean that we will grow nothing but dandelions and love them. It does mean that we'll begin to look for the beauty that goes with a climate and garden accordingly.

So now, I am reconciled to having a garden without boxwood, without rhododendrons, without flowering dogwood, and I revel in the plants that you, in the Northwest, in Massachusetts and even you veteran gardeners of England cannot grow without arduous labor.

And if you think that this makes for monotony, let me remind you that there is still that local climate, which creates opportunities for a variety of solutions.

The happy gardener utilizes climate problems, instead of trying to "do something about them."

## WOOD FOR COFFINS

By DR. A. C. HILDRETH

This is a grave subject, and has enlisted the attention of an English paper, which says married people should be buried in pear tree coffins, chronologists in the date tree, bricklayers and plasterers in lime tree, pugilists in box wood, schoolmasters in birch, old bachelors in elder tree, cowards in trembling aspen, the honest tar in sturdy oak. The list may be extended by adding: Misers in chest-nut, inconsolate maidens in pine, democrats in hickory, whigs in ash, politicians in slippery elm, authors in pop(u)lar, millionaires in plum, old soakers in cherry, pretty women in sugar maple, handsome folks in dogwood, clam-catchers in beech, soldiers in lancewood and hard-hack, dairy-maids in butter-nut, dandies in spruce, fishermen in basswood, poets in laurel, horse-jockies in horse-chestnut, hatters in fir, shoemakers in their own tree, blacksmiths in ironwood, book-binders in boards, lovers in the tulip tree and sigh-press, coquettes in witch-hazel, travelers in sandal-wood, gardeners in rose-wood, landscape painters in birds-eye maple, carpenters in plane-tree, misanthropes in crab-apple, odd-fellows in the palm tree.

The following may also be considered very appropriate plants for decorating the graves of different craftsmen, professional men, etc. Watchmakers the "four o'clock" and thyme, sextons of churches, canterbury-bell; surgeons, boneset; astronomers, nightshade; upholsterers, fringe-tree; dry goods men, calico plant; fortune hunters, mary-gold; spendthrifts, the billberry; scribblers, the calamus or jonquills; cooks, the pansy or buttercup.



## SUMMER'S HARVEST

By SUE KELLY

**W**HAT do you intend to do with your summer trips? Just race from one place to another without really enjoying our beautiful, colorful Colorado? Why not take time out this summer and really live for you won't always have time to do so. Look! and observe those beautiful flowers and (probably just weeds to you!) dried materials as you drive on your way, stop and gather some for future use. The pictures which accompany this story were taken in December of arrangements made by Mrs. J. L. Janosky, of the Home Garden Club, Inc. This type of arrangement is certain to win you an award in any flower show, and those of you who saw "Dried Drama" as presented by the Home Garden Club last fall will know what I mean. It is an interesting and exciting hobby.

Do you have an old gilt frame which has been placed in the attic

to gather dust? Get it out and refurbish it with paint, put in a box covered with black velveteen and see what you can do about arranging some of these dried materials. Figurines help make the picture. How about dried wood figures? In your tramping up a fishing stream or around the camp grounds, do you see elves, animals, or just grotesque pictures? If it isn't on a preserve or



*Dried Garden Annuals which retain their color used in twin vases.*

*Milkweed, Dock and Yarrow*



forest area where collecting is prohibited, I'd suggest you bring it home and then see what you can do.

Milkweed pods, either open or partly so with the silk showing; rumex (dock), with its variations of color from a beautiful pink, green, tan or brown; Queen Anne's lace or wild parsley; prickly poppy seed pods; gum weed; yucca pods and the leaves; all these make wonderful arrangements, and are easy to collect. Some of the evergreens make wonderful additions. May I caution you on one



point? Do your collecting neatly, and with an eye to the future. Don't just rob everything from the roadsides and the place where you happen to find the material. Do it so unobtrusively that your depredations will go unnoticed. Good hunting! and a very delightful summer!



## LILIES HELP YOUR GARDEN

Research in lily-breeding has brought forth numerous improved hybrids, as well as better knowledge of how to grow them. A wide variety of form, color, size and season of flowering has appeared recently in horticultural markets.

Colors run from pure white, through pink, orange, reds and combinations of these colors. According to the American Association of Nurserymen, lilies require a deep, porous soil, very slightly acid, and plenty of sun. They should not be planted too deeply, none with more than five inches of soil over the top and others just barely covered with soil, according to instructions for different varieties as given by your nurseryman.



*This little Chinese Goddess feels at home in a grape root temple.*

*Old-fashioned flowers and figurine in a shadow box.*

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*All arrangements shown here were made by Mrs. J. L. Janosky of the Home Garden Club from materials which she gathered and dried.*

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*Fresh evergreens used with dried zinnias.*







*Our native Thimbleberry.*

## COMMUNITY PLANTS

By GEORGE W. KELLY

A GOOD gardener coming into our state from the east misses their annual display of Flowering Cherries, Flowering Dogwood and their fall show of the Hard Maples. One coming from the south misses their Magnolias and Rhododendrons. Those from California miss the fabulous showing of Palm Trees, Orange Trees and tropical plants. A visitor from the northwest misses the showing of Geraniums and Climbing Roses.

Many decide that because they do not see their familiar display of trees and flowers that we are a rather drab and barren country. This need not be, for because of our great change in altitudes and other climatic differences we might have a very large range of plant displays. We must always remember though that "Rocky Mountain Horticulture is Different"

and should not expect the same brilliant displays as seen in other places.

We believe that every community in the state might well become known for some distinctive flower or tree. This would add much to the local pride and be an added attraction for the thousands who flock to our state each year to enjoy the natural beauties that were originally here.

As a reminder and example all will remember Central City because of the display of Harrison's Yellow Roses growing all over the town. Rocky Ford is rapidly becoming known as the Zinnia city as well as their ancient title of the cantaloupe town. Littleton also plants Zinnias as a community project and attempted at one time to become known for their Walnut trees. Fort Collins, Idaho Springs and other communities are known for their Lilacs. Lilacs



might well be our state flower, for no other flowering shrubs grows so generally all over the state. Even more prominent in the minds of passers-by in the Idaho Springs area are the naturalized Yellow Clematis (*Clematis orientalis*) which are reported to have been brought in by a Japanese cook some 60 years ago.

The naturalized Butter and Eggs (*Linaria vulgaris*) along the roadside are distinctive of Georgetown as well as the Bleeding Hearts in town. The town of Aspen and Sweet Peas are almost synonymous and the town of Steamboat Springs and Aspen trees are becoming almost inseparable in people's thoughts. Loveland is thought of by many as the town of 'mums because of the striking annual display of these flowers at the Kroh Brothers Nursery.

Peach blossoms immediately bring to mind Palisade and Apple blossoms remind one of Canon City. Burlington is associated with the lines of Austrian Pines and Chinese Elm that Mr. Pesman planted along the highways near there years ago. These highway plantings also add distinction to the little town of Pinyon by plantings of Pinyon Pine and the bright splashes of native Sumac along the highways south of Littleton are reminders of Douglas County.

Last fall while driving from Denver to Sterling the miles of roadside covered with Sunflowers and Evening Star (*Mentzelia*) were unforgettable. Mr. De Boer once attempted to plant long avenues of Hopa Crabs throughout Denver which would have rivalled the flowering cherries of Washington.

High altitude towns like Leadville might use some of the close-by native evergreens in great quantity. Avenues of Spruce and Fir could make the town quite distinctive. There are many native plants which

once established might grow with no care and give a beautiful, distinctive appearance to the community. The Thimbleberries as one drives into Bailey are as close to an effect of the Eastern Flowering Dogwood as we may have here. The native Hawthorns, native Spireas (*Holodiscus*) and Mountain Ash might well be used by some mountain towns.

Plains towns might use long avenues of Russianolives, Colorado Cedars, Prickly Poppies, Cottonwood or Sunflowers. Communities with some irrigation might make themselves distinctive through using large masses of Oriental Poppies, Austrian Copper Roses, Paul's Scarlet Climbing Roses or avenues of Mountainash, Goldenrain trees, Buckeyes, Silverlace vines, Tulips, Purple Clematis, Roses, Washington Thorns or Ginnala Maples. Favorably located towns might emphasize Columbine, Redtwig native Dogwoods, Flowering Plum and Almond, Euonymus, Ponderosa Pine, Iceland Poppies, Delphinium, Gladiolus, or even Petunias. The Hardy Buddleia is a distinctive large shrub that some community might adopt. The shrub Redleaf Rose is attractive and easily grown. In more difficult situations the Tamarix, Bush Honey-

*Our native Spirea, or Mountain Spray.*







suckle, Yucca, Iris, Cactus or Catal might make an impressive showing. Communities of favorable horticultural advantages like Boulder, Canon City or Golden might be distinctive for their great variety of plants.

When the state gets really small it will take a little of the annual appropriation for publicity and hire a state landscape architect who will be assigned the pleasant duty of advising with communities all over the state to help them select the proper plants to use and to also eliminat



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THE PRESSURE generated by the Bureau of Reclamation, and by those others who want dams in the Dinosaur Monument, come from people who have been given SEVEN WRONG IDEAS.

- WRONG IDEA NO. 1.—Utah people have been led to believe that the proposed Echo Park dam would be the primary point for storing water and diverting it to central Utah for irrigation.*
- 1.

The fact is that the diversion to Central Utah need NOT come from the Echo Park reservoir. The fact is that equal amounts of water for local irrigation can be impounded equally well at other sites.

- WRONG IDEA NO. 2.—Colorado and Utah people have been led to believe that Echo Park dam is needed to make sure the upper basin states can afford to let 8,250,000 acre-feet a year flow on down the Colorado into the lower basin states and Mexico—as agreed to in an interstate compact and treaty.*
- 2.

The fact is that water storage more than adequate for meeting the requirements of the interstate agreements will be provided by another reservoir—Glen Canyon, with still others planned upstream.

- WRONG IDEA NO. 3.—The people of the Colorado River region have been led to believe that Echo Park dam is the "wheelhorse," or the "piston in the engine," of the Upper Colorado Project—that profit from Echo dam power sales would pay a substantial part of the cost of the entire project.*
- 3.

Federal Power Commission calculations show, however, that if there is a "wheelhorse" it is the proposed Glen Canyon dam, and that Echo Park power would cost as much (or more) than it could be sold for. Equivalent steam power, using coal from upper-basin-state mines, could well be cheaper to produce, give firm power, keep miners employed, and save Dinosaur as well.





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YOU ARE BEING ASKED, through your representatives in Congress, to allow the Bureau of Reclamation to build dams in our national park system.

Will you allow this?  
Or will you join with other conservation-minded, public-spirited citizens to protect our national park heritage against this dam-building invasion that now threatens?

Your answer is important. *Action is urgent.*  
We are in the midst of a controversy over very specific dam proposals in the Dinosaur National Monument's magnificent Yampa and Green River canyons in northwestern Colorado and northeastern Utah. The Secretary of the Interior himself has added his support to the Bureau of Reclamation proposal. Bills to authorize it are now in Congress.

If dams are permitted in this unit of the national park system, other areas will also be in jeopardy.

On the other hand, if the people of America now turn back this threatened invasion, by reaffirming to Congress the sanctity of the areas that the Nation has dedicated for preservation, the whole national system of parks, monuments, wilderness, wild, primitive, and roadless areas can be safeguarded more securely than ever before.

This is a test case. The issue we now face marks a crisis in the whole history of wilderness preservation in the United States. It concerns all of us.

OUR NATIONAL PARK SYSTEM preserves the outstanding scenic resources of our wild, unspoiled America . . . the crown jewels of our democratic nation . . . the most beautiful, most magnificent, most awe-inspiring scenes of outdoor America.



HERE IS STEAMBOAT ROCK, 700 FEET HIGH, AT THE MEETING OF THE GREEN AND YAMPA CANYONS. ECHO PARK RESERVOIR WOULD FLOOD ALL BUT AN ISLAND AT THE TOP. *YOU CAN STOP THIS!*

The American people, through Congress, have clearly expressed their will that these superbly precious parts of our native landscape should be preserved, unimpaired, unchanged, uncommercialized—held sacred for the inspiration, education, health, and enjoyment of generation after generation.

Throughout the Nation this preservation policy is endorsed and supported.

**Y**ET OFTEN some of those who live near one of the great areas dedicated for preservation are persuaded that there is an opportunity for exploitation which, they argue, should be excused as an exception for just one area which is in their locality.

So it seems now, with those people of the Upper Colorado River region who favor exploitation of the majestic canyons of Dinosaur National Monument for their reservoirs and power plants . . . who want also the chance to help spend the hundreds of millions that the federal government would have to pay for the Dinosaur dam construction.

The people of this region have been persuaded so

to use these canyons in the National Monument by the federal Bureau of Reclamation, which in its zeal for a stupendous reservoir and power program has emphasized local interests at the expense of the national welfare. These people have been misled.

It is a sorry story.

A chain of events has now committed the United States Department of the Interior to the exploitation of one of the most superb of all the areas that the Nation has entrusted to its guardianship.

The Secretary of the Interior is in the extraordinary position of sponsoring the destruction of an area for which, by law, he is the guardian.

The people of America must themselves write the ending to this story.

You can help. You can write to your congressman and to your senators. You can write them to *OPPOSE THE ECHO PARK DAM.*

Congress should reaffirm the sanctity of the areas the Nation is preserving and should prohibit the use of any water development funds for dams or other engineering works inside the Dinosaur Monument.

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The fact is that water storage more than adequate for meeting the requirements of the interstate agreements will be provided by another reservoir—Glen Canyon, with still others planned upstream.

- 3.** *WRONG IDEA NO. 3.—The people of the Colorado River region have been led to believe that Echo Park dam is the "wheelhorse," or the "piston in the engine," of the Upper Colorado Project—that profit from Echo dam power sales would pay a substantial part of the cost of the entire project.*

Federal Power Commission calculations show, however, that if there is a "wheelhorse" it is the proposed Glen Canyon dam, and that Echo Park power would cost as much (or more) than it could be sold for. Equivalent steam power, using coal from upper-basin-state mines, could well be cheaper to produce, give firm power, keep miners employed, and save Dinosaur as well.



the Yampa and the Green, threatened by the proposed Echo National Monument, are magnificent and colorful deep sculptures of Whirlpool Gorge; and the great more than 1,600 feet deep, rock around unnumbered curves. All these are unlike in the national park system. r, but in several respects of their kind in the whole of tizer, of the Smithsonian In- down the turbulent streams. marvelous canyon country that Dinosaur quarry which gave e. This quarry—80 acres— When the great canyon coun- or its preservation, the whole he Dinosaur name.)

ce just like it," said National Newton B. Drury at a hear- called by the Secretary of the n Drury added, "there *are* necessary dams may be built." vationists of America: wilderness is too precious to ated by dams.

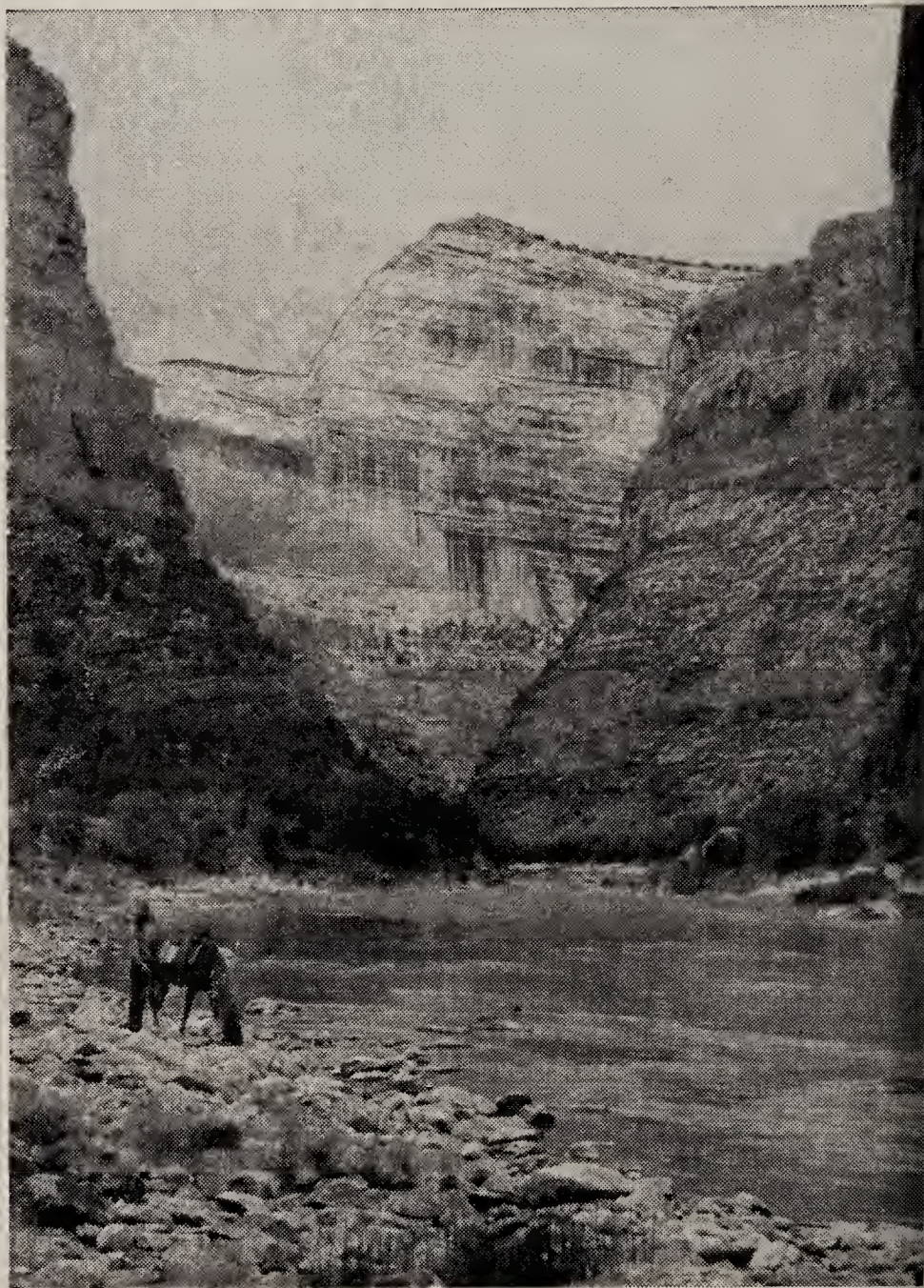
**YOUR CONGRESSMAN  
ATORS? RIGHT AWAY!**

ies of this folder, write to:

**COMMITTEE ON  
RESOURCES**

IELSON, *Chairman*  
Washington 5, D. C.

# *DON'T DAM the National Park System*



YAMPA CANYON, DINOSAUR NATIONAL MONUMENT

**BILLS NOW IN CONGRESS WOULD  
MAKE A RESERVOIR OUT OF THE**



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Loveland; Zinnias in Rocky Ford; Na-  
ve Mountainash near Steamboat Springs.  
nter: Prickly poppy, Pinyon Pine along  
e road by Pinyon, Colo., Evening Star.  
wer: Rock garden in Boulder, Golden-  
in Tree, Catalpa.





4. *WRONG IDEA NO. 4.—People in this region have been led to believe that unless the dams at Dinosaur are built the power and water to be provided by these dams will not be available in the upper basin states.*

General U. S. Grant III, formerly with the U. S. Army's corps of engineers, now president of the American Planning and Civic Association, has proved—from the Bureau of Reclamation's own data—that there are substitutes which will actually provide more storage and more power, at less cost.

5. *WRONG IDEA NO. 5.—It is argued that any alternative to the Echo Park dam would waste too much water because of added evaporation losses.*

Here are facts: In 1950, the Bureau of Reclamation claimed that the Echo Park dam would save 350,000 acre-feet of water a year (as compared with alternatives), because its reservoir would be in deep narrow canyons where evaporation would be at a minimum. (About 12 percent of the maximum acreage would be in deep canyons, the rest out in the open.) By 1953, the Bureau was claiming Echo Park would save 100,000 to 200,000 acre-feet a year, as compared with alternatives. Its own data indicated, however, a saving of only 44,000 acre-feet as compared with the alternative that General Grant suggested. The Bureau's data also indicated there actually would be a loss of 20,000 acre-feet if the Echo Park dam were to be built instead of using a possible alternative enlargement of the Glen Canyon reservoir. Conservationists have thus found the Bureau's statements contradictory and have surmised that this evaporation argument is being used as a plausible pretext rather than as a sound reason. The U. S. Geological Survey—an authority—says that evaporation estimates are "based on very meager data as to evaporation of free water surfaces and transfers

of data from remote areas in the case of natural losses from the stream. Detailed investigations have not been made." Conservationists are convinced that evaporation will never become a penalty for the preservation of the Dinosaur National Monument.

6. *WRONG IDEA NO. 6.—It is claimed that the Echo Park dam is justified by an "agreement" made with the local people, in 1936—when enlargement of the Monument was being discussed.*

The fact is, no one had Echo Park in mind in 1936. Such "agreements" as there were had to do with another site, and were kept. The Proclamation that enlarged the monument, in 1938, specified that "the administration of the monument shall be subject to the Reclamation withdrawal of October 17, 1904, for the Brown's Park Reservoir Site in connection with the Green River Project." Brown's Park is many miles up the river from the Echo Park site and extends only some 4 miles into the northern end of the Monument, whereas the Echo Park site is at the very heart of the Monument. In no case can this Brown's Park reservation be distorted into authorization to build the Echo Park dam.

7. *WRONG IDEA NO. 7.—The Bureau of Reclamation has claimed that the proposed reservoirs in the Dinosaur Monument would create additional recreation facilities.*

The fact is that substitute dams in other locations will create many such additional recreation facilities for the region. And, use of these alternate sites will leave the monument undestroyed; its irreplaceable and unique resources will then remain unspoiled, for the inspirational, educational, and recreational benefit of the entire Nation and future generations. WE CAN HAVE BOTH THE UNSPOILED MONUMENT AND THE ADDED FACILITIES.

THE CANYONS of the Yampa and the Green, which are now threatened by the proposed Echo Park Dam in the Dinosaur National Monument, are superb and unique—the magnificent and colorful Canyon of Lodore; the deep sculptures of Whirlpool Canyon and Split Mountain Gorge; and the great gorge of the Yampa, more than 1,600 feet deep, twisting through colored rock around unnumbered bends, loops, and ox-bow curves. All these are unlike anything anywhere else in the national park system.

"Not only spectacular, but in several respects unique, and the finest of their kind in the whole of America," said Frank Setzler, of the Smithsonian Institution, after a boat trip down the turbulent streams.

(Note: It is this marvelous canyon country that is threatened—not the Dinosaur quarry which gave the monument its name. This quarry—80 acres—was set aside in 1915. When the great canyon country was added, in 1938, for its preservation, the whole 209,744-acre area kept the Dinosaur name.)

"There is no other place just like it," said National Park Service Director Newton B. Drury at a hearing on April 3, 1950, called by the Secretary of the Interior. "But," Newton Drury added, "there are other places where the necessary dams may be built."

And so say the conservationists of America:

This canyon-plateau wilderness is too precious to the Nation to be desecrated by dams.

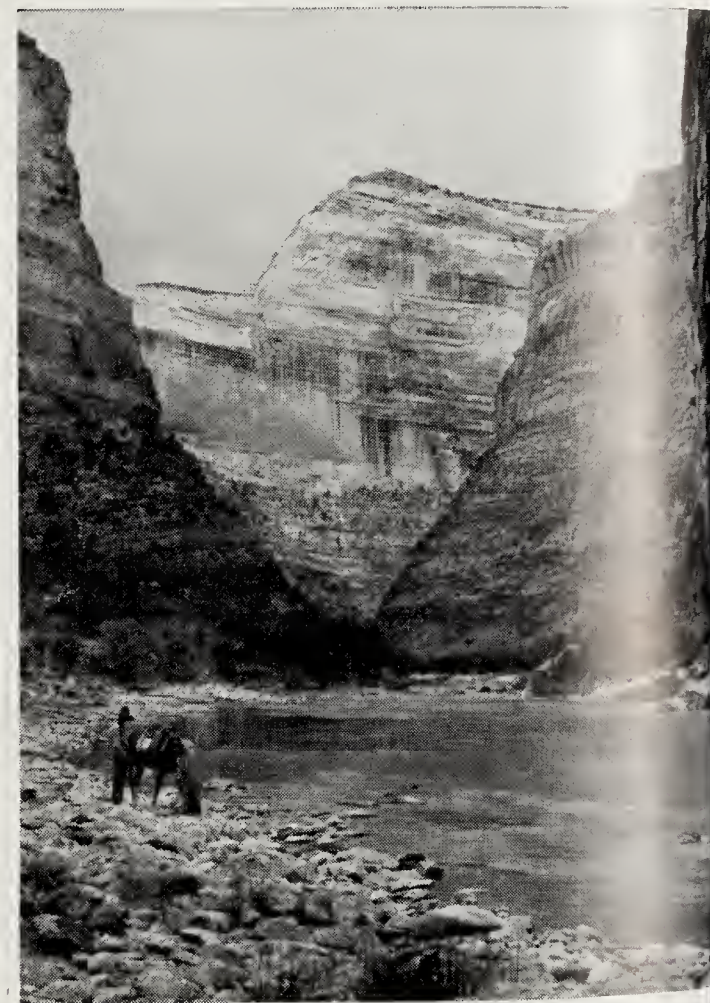
*WON'T YOU TELL YOUR CONGRESSMAN  
SO? AND YOUR SENATORS? RIGHT AWAY!*

For information, or copies of this folder, write to:

EMERGENCY COMMITTEE ON  
NATURAL RESOURCES

IRA N. GABRIELSON, *Chairman*  
709 Wire Building, Washington 5, D. C.

# DON'T DAM the National Park System



YAMPA CANYON, DINOSAUR NATIONAL MONUMENT

*BILLS NOW IN CONGRESS WOULD  
MAKE A RESERVOIR OUT OF THIS*



one of the objectionable dumps and junk car lots that now dominate the view and give a stranger his lasting impression of so many towns. This state landscape architect might even help with the establishment of better and more highway parks and general preservation and beautification of the state.

*Some of the possibilities for masses of community plants. Top, left to right: Roses in Loveland; Zinnias in Rocky Ford; Native Mountainash near Steamboat Springs. Center: Prickly poppy, Pinyon Pine along the road by Pinyon, Colo., Evening Star. Lower: Rock garden in Boulder, Golden-rod Tree, Catalpa.*





## OPEN LETTER

MR. KEN FERGUMORE,  
Nurseryman,  
Denver, Colorado.

Dear Sir:

Your letter made me do a lot of thinking, and that, I presume, is good for all of us.

After all, nurserymen and landscape architects should be much closer together than they have been in the past. All of us are interested in more or less the same thing: we like growing things, we want Denver to be a center of horticulture, and we must please the customer. Perhaps we can thrash out a few differences and we'll all be better off.

Believe me, we don't like these involved specifications any better than you do. In fact, you may remember that we boiled them down considerably in the Housing Projects. The only thing we want to do is protect the client and the nurseryman both by making it easy to do the right thing and difficult to do the wrong thing. One bad egg may smell up a whole setting, or shall we talk about one rotten apple infecting all? You and I would have no difficulty even without any specifications: we both want to do a job and do it well.

Now for those items that you don't grow and that some of us do specify. It does create a difficulty under present conditions, I admit. And it makes me recall some specified plant lists of early government jobs, drawn up by Washington landscape architects. What with magnolias, rhododendrons, yews, flowering dogwoods and deutzias—they made us both smile and weep. Too many so-called experts still think that a plant ought to be all right in Denver if it does all right in Wisconsin or Illinois, or

Vermont. Low temperatures alone do not decide hardiness.

On the other hand, let me remind you of a time that isn't so far back, a time when people thought that nothing would grow here except cottonwoods, and boxelders with a few scattered lilacs and snowballs. At that time a nurseryman would have to stock up on those few items and plants like spireas, flowering almonds, hackberries and mockoranges simply would not sell. Roses and lilies? No use even to talk about them. "They don't do in Colorado."

So you see, we are gradually adding new things to our hardy or semi-hardy list and, as people see them in other gardens, they want them. Shall we encourage them to send east for them? I'd like to get your reaction on that question. At best a number of orders go to out-of-state nurseries; as a good Coloradoan I'd like to have our local people supply them. But—without your cooperation, there is little a landscape architect can do to help!

Now let's come to those items you mention. Koelreuteria or Goldrain-tree is a beautiful small tree, blooming in July, the very time when few things are exciting, and sporting attractive lanterns from late summer till midwinter. We think it's worth babying a little, if necessary: there are so few good *small* trees, in scale with our modern homes! Why not grow them from seed, and have a hardy race that is homegrown?

Robina neo-mexicana, the Pink Locust, is almost super-hardy, spreading as it does from the roots. When it shows its glorious wistaria-like blossom, a deep pink, people go wild over them. Mr. Nurseryman, you are just missing a bet by not stocking



it. An old-timer landscape firm used to have a patch in a corner of his nursery and we'd dig a few whenever needed.

The low caragana is a striking small bush when in full bloom, quite hardy; low ninebark has practically no vices; *Amorpha canescens* is a change from the general run. And so on and on.

Well, what it all comes to is that we are not fair to our Denver and Colorado public by sticking to the safe, sound, and stupid.

So I am coming to you with a counter-proposal. Instead of "sticking to the every-day trees and shrubs, for a good profit and without a headache," why not stock a few of these "specials" and feature them? If people do not know them now, they will soon, if they are good plants. If you get temporarily overstocked, offer an extra one as a prize for a good-sized order.

Isn't that what other merchants do? And isn't it good business? As a landscape architect I am not supposed to know about how to make money. But I have seen others make money in just such a manner.

And I for one, *won't* be too happy if every home has plenty of Pfitzers and "cute little spruces." I have seen too many of them growing up out of their cuteness, heaven help them—and us.

Yours for the good of all of us,

ANDREW S. DE HUDDLEMAN,  
Landscape Architect.

P.S.—Oh, yes, I forgot. You can find good, healthy specimens of Koelreuteria or Goldraintree at South High School, Washington Park, Skinner Junior High and other places. Japanese Varnish Tree is another name for it. Take a look when they are in bloom!

## NEW MEMBERSHIPS

April and May, 1954

- Dr. and Mrs. Grant H. John, 2651 S. Grant, Denver.  
Mr. Charles V. Soucek, 756 Geneva, Aurora.  
Mrs. Lester B. Johns, 908 Pioneer Ave., Fort Collins.  
Mr. Bernard C. Weaver, 3564 Kearney St., Denver.  
Miss Louise Winterburn, 421 Vivian, Longmont, Colo.  
Ruth Alt, 335 University Blvd., Denver.  
Dr. D. Alvin Berg, Greeley Bldg., Greeley.  
Mr. L. G. Schmutz, 4135 Ammons, Wheat Ridge.  
Mr. Benson, Director, Boyce Thompson Arboretum, Superior, Arizona.  
Mrs. W. L. Prouty, 100 Jersey St., Denver.  
Miss Louise Linkenheil, 4062 S. Acoma, Englewood.  
Mr. T. E. Friedemann, 650 Ivy, Denver.  
Mrs. Norman Wilmot, 2283 So. Clayton, Denver.  
Mr. and Mrs. C. C. Engle, 2024 Ivy, Denver.  
Mrs. Ira Howell, 845 Ellipse Way, Denver.  
Gary S. Town, 295 S. Depew, Denver.  
Esther Leffelbein, 310 Jackson, Denver.  
Mrs. Wilton P. Chase, 1718 S. Elm, Denver.  
Mrs. Dorothy J. Pearson, 3825 E. 7th Ave., Denver.  
Mrs. W. L. Allen, Jr., 375 Ivy, Denver.  
Mrs. D. H. Van Houten, 1416 S. Grant, Denver.  
Mrs. Chester Harwood, 1157 S. Garfield, Denver.  
Mr. William J. Krauter, Wah Keeney Park, Evergreen.  
Mrs. C. A. Bestwick, Encampment, Wyo.  
Mr. Clarence O. Gartrell, 6675 W. 44th Pl., Wheat Ridge.  
Mrs. R. Swaim, 11,510 W. Center, Denver.  
Mrs. George P. Stamm, 1016 S. Cook, Denver.  
Mrs. Edward B. McClellan, 7596 No. Lowell, Westminster, Colo.  
Mr. Cedric A. Nater, 940 Newport, Denver 20.  
Mrs. Alice Peters, 926 Grant, Ft. Morgan.  
Mrs. John D. Turner, 221 So. Forest, Denver 20.  
Mr. Clay R. Rutter, 401 St. Paul St., Denver 6.  
Mrs. Gertrude L. Cox, 8200 W. 16th Ave., Lakewood.  
Mr. Joseph D. Pender, 955 So. Corona St., Denver 9.



## QUERCUS (QUEER-CUSS) IS BACK!

Mr. George W. Kelly,  
Editor, Green Thumb.

Dear Mr. Kelly:

I returned to Denver last week after an absence of several years. Shortly after the Green Thumb Banquet of 1946, when I appeared in person, I went to Kew to view a yew and have been away from Denver ever since. It is good to be back. May I send you an occasional "Quip"?

The first thing I did was to pick up the latest *Green Thumb*—May, 1954. It was a splendid magazine when I left; it is better now. Congratulations.

I was both amused and irritated at the "Open Letter" on page 19. From time immemorial the landscape architect (L.A.) and the nurseryman (N.) have cussed out one another. Each has a point. The L.A. is an artist, he is seeking to create beauty. The N., all too frequently, is simply seeking to create a dollar—for himself. Being essentially an aesthete, the L.A. is sometimes impractical. He wants to employ all the beautiful plants he has seen and read about. All too frequently he ignores local conditions. The N., on the other hand, seldom reads the standard books on horticulture and is resentful because the L.A. mentions in specifications that which he knows not of. In this particular controversy the N.'s (for there are at least three in the compound *nom de plume* employed) climbed out on a rotten limb and then severed it with a chain saw.

The N.'s should all read and reread pages 24-30 of the July 1953 *Green Thumb*. There a joint committee from Colorado A & M College, the Denver City Forester's office, the Denver Parks Department, the Denver County Agent, the Colorado

Nurserymen's Association (italics mine), the Denver Landscape Architects, the State Entomologist's Office, and the Colorado Forestry and Horticulture Association (what a group!) rated over 500 woody plants either "commonly grown in Colorado" or "sometimes offered for sale here." With respect to hardiness four ratings—A, B, F and Z—were employed; A being the highest, Z the lowest. Similarly these 500 trees and shrubs were given four ratings for desirability for planting other than hardiness, viz: a, b, f and z.

The "Open Letter" lists seven woody plants as being ones that can't be purchased, so far as the N.'s know, and being wholly unknown and unsuited to this area besides. Let's examine their suitability. The Joint Committee gives *Koelreuteria paniculata* a rating of Ba, *Robinia neo-Mexicana* (a native) Ba, Dwarf Ninebark (*Physocarpus opulifolius nana*) Aa, *Amorpha canescens* (another native!) Aa and *Rosa blanda* Ab. For the other two on the list a reference to Rehder's Manual (the book that should be on every nurseryman's shelf, which, of course, is available to them in the Library at Horticulture House) discloses that *Caragana chamlagu* and *Prunus tenella* are both Zone II shrubs (hence hardy not only in Denver but at Echo Lake!) and are both outstanding plants.

It is all too true that many Colorado nurserymen (but not all) limit their own stock to "Pfitzers and cute little spruces," as the writers of this "Open Letter" do. But even the writers of the Open Letter sometimes write to "Shenandoah" for plants, but apparently they search no farther. There are other nurseries in the U. S. than those at Shenandoah, however. Had I been given a request for these



plants, the first place I would have looked would have been in the catalogue of Henry J. Kohankie. So I borrowed one (I have no catalogues myself) and did just that. *Every plant, except C. chamlagu is there offered!!* I suspect an examination of a few more catalogue, or even a \$2.00 want ad in the *American Nurseryman* would locate this other plant.

Mr. N.'s, read the *Green Thumb*, buy a copy of Rehder's Manual and keep a file of catalogues of leading nurseries and you may get some of those contracts and make an extra dollar for yourselves.

QUERCUS.

## ROLE OF A STATE FORESTRY ASSOCIATION

By LOWELL BESLEY

As Condensed from an Article in  
January, 1954, *Virginia Forests*

In his excellent article in the January issue of *American Forests*, Henry Clepper pointed out that in the past, state forestry associations have done two special and necessary tasks which no other organizations, governmental or private were capable of doing or prepared to do. The first service performed was that they were the main leaders in the march of conservation. The second has been the mobilization of public sentiment behind the job to be done. It seems to me that these two functions remain today and will continue to be a principal role of state forestry associations.

At first, the conservation movement was small and everyone in the field knew everyone else engaged in it and what he was doing. As more and more groups and agencies have joined the movement and have expanded the activities many-fold, it has become increasingly difficult to combine these activities in a sound, effective and

well-coordinated movement. The state forestry association is especially fitted to meet this task. It is not a special interest group. Its individual members may be particularly interested in a dependable source of trees to cut, or in plenty of game and fish in the woods for happy hunting and fishing, or in watershed protection on the hills to retard runoff and save the top soil of the rich bottomlands they are farming, or in a clean and dependable water supply for domestic or industrial use, or in a pleasant place in which to camp or hike or to commune with nature. Yet each knows that his own interest is served best by a wise program which respects the interests of all. For this reason, the state forestry association is in the unique position of combining and representing the interests of all good citizens, whoever they may be. It does not and cannot represent the selfish interests of one group which might seriously harm another. It can and must take a broad and objective view. By following this sound course, the association wins the respect, cooperation, and support of all groups, and exerts wide influence.

Furthermore, the state forestry association is non-competitive. It is not for self-aggrandizement. Instead, it does everything it can to build up and strengthen existing organizations and agencies which are equipped to do the job. On the other hand, it should be alert to fill in the gaps in the overall movement both by encouraging and mobilizing support for others and by taking direct action where necessary.

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"The pleasantest work of human industry is the improvement of something which we can call our own."  
—Cowley.





## WHAT WE NEED IN OUR BOTANICAL GARDEN

By M. WALTER PESMAN

**I**F YOU were living close to London, you could check up on a number of our Colorado flowering shrubs by going to Kew Gardens; if in Montreal, you'd find a garden under construction by the Montreal Botanical Garden, featuring plants which American Indians used for food, fibre, oil, and dyes.

Alpine plants occurring in almost all high mountains in the Northern hemisphere, as well as in the Arctic regions, are shown in one of the collections of the Botanic Garden in Berne, Switzerland, which I visited in 1947. Not too far away was the gem of all botanical gardens which I have ever seen (and I have studied dozens of them) tucked away in the Swiss Alps at Schynige Platte. It is a perfect illustration of what we can do in our foothills.

The Bergianska Tradgarden near Stockholm gave me a chance to compare some of our garden phloxes with those of Sweden. In other words, it has a collection of garden varieties as well as of native plants. "American Trees" such as hard maples and oaks, are featured in a newly established "forest" near Amsterdam.

"The world is my oyster," according to Shakespeare. And so it is in the matter of botanical gardens. So many other cities and regions have contributed that Denver can now pick and choose the very best. The following possibilities come to mind; I hope that this article may be instrumental in suggesting others, so that our Botanical Gardens will be among the outstanding ones in the world. Our opportunities are legion.

First of all, of course, comes a



complete collection of all trees, shrubs and perennials that will grow outdoors here. Each plant will be carefully and correctly labeled with both common and botanical name—with perhaps a short interesting statement as to its best use, origin, or treatment. What a joy it will be to compare an unnamed specimen in our garden with the one in the Botanical Garden to make sure of what it is. And what a satisfaction to find a new hardy tree or shrub that fits exactly the sort of location we have. That in itself would be worth all the effort a botanical garden requires. How we need it!

The old-fashioned way of arranging plants is by family along the taxonomical line: trees, shrubs, perennials, annuals are put in certain plots simply because they are "related" in a plant family. Thus we might find mulberry, fig, hemp and hop in one little square, that of the Urticaceae.

Fortunately there is a breath of fresh air coming into the old type of botany, and now we find many modern botanical gardens arranged in another way. "Ecology" has taken over from "taxonomy," which simply means that we are apt to find plants together that naturally grow together, because they require similar conditions of moisture, soil, and shade, for instance.

Under that system we would find groups of yucca, cactus and skunkbush far away from ferns, cattails, and columbines.

But what becomes of such an ecological system applied to cultivated plants, especially under irrigation? Possibly our Rocky Mountain Botanical Garden will have to do some pioneering here.

Some of us have tried to do some scientific reasoning in this field that

might lead us to a sort of "cultural ecology." After all, even under irrigation conditions plants flourish best under certain definite treatment. Some require much water and little drainage, others want to have "dry feet," others again do best in semi-shade and away from heavy winds. Careful grouping then, under this cultural ecological system, would still indicate a sort of natural "belonging together." As an illustration: cannas and geraniums just do not look happy with Rocky Mountain columbines and aspens. And neither group would seem at home with any kind of yucca, pinyon pine or even gaillardia or tamarix. Each group has a different "feel," in our mind, and this "feel" is probably derived from an unconscious association with the conditions under which they grow best.

Developing this idea into more or less unexplored types of thinking, we may arrive at the conclusion that certain plants have been under cultivation for such a long period that we associate them primarily with the home and the garden. Thus we group together in our mind such "flowering shrubs" as bridal wreath, flowering almond, and snowballs, and we immediately think of tulips, roses and petunias as fit companions for them.

No wonder then, that many up-to-date botanic gardens set aside a demonstration home garden, landscaped

*These scenes in the well arranged Boyce-Thompson Institute Arboretum near Superior, Arizona.*





properly, provided with a kitchen garden and with fruit trees and cut-flowers.

This then is the second need that presents itself for our own botanical garden: the demonstration home garden, in addition to the complete collection of everything that will do here.

A third special collection that both tourists and home-folks will want is one of *all the native plants of the region*, again well-labeled with proper botanical and common name or names. This is, of course, a huge task, since the Rocky Mountain region has so many different plant zones. Each zone will have to be kept more or less by itself, and within each zone there will be various plant associations based upon moisture, soil acidity, shade, exposure. Eventually this will require a separate substation at various elevations, one of which should be above timberline. By careful attention to local conditions it may be possible to include in these "native collections" plants that belong as far north as Oregon and as far south as portions of Texas, Oklahoma, and Arizona. Eventually, of course, the latter groups will have to be extended by being grown under glass. That is "music of the future."

*Economic Plants* will comprise number four in our list. Here the aboriginal Indians were our first teachers. It is amazing how many plants they had for home use. Food was one usage, of more or less importance depending on the type of civilization achieved. Fibres of yucca and other native plants were employed in many ways; other plants furnished oils and dyes, still others were known as medicinal plants, either imaginary or factual.

This in itself would be of great interest to many visitors. So would

a collection of all the poisonous locos, larkspur, milkweed, sneezeweed, hemlocks and others. Around one hundred of such plants are described in a bulletin of the Colorado A and M College on "Poisonous and Injurious Plants." Wouldn't you like to see them all together in one plot, so you could recognize them later in the field?

Of definite value would be another subdivision of these economic plants: the "rubberplant" collection. During World War II two plants were studied in detail, qayule and kok-sais, the latter a Russian dandelion. Colorado Rubberplant is a native plant of the sunflower family which has been mentioned as a possible producer.

It is impossible to foretell what important plant products will, in future, be derived from other native plants. Certainly there must be a use for milkweed, sagebrush and creosotebush. The recent science of phytochemistry may have much in store for us. In time this collection of economic plants may be a source of local or national income.

A fifth group of important plants may have to be kept in a "sneeze-proof" location. I have reference to the *Hayfever Plant Collection*, of all the culprits that cause hayfever and its various related ills, known as allergies. All sorts of ragweeds, grasses, sagebrushes, and other pollen producers of the wind-borne kind would be brought together here, for study and observation. It might have to be segregated in a green house, to prevent visitors from being affected. Yes, on second thought, this collection might be one of the last ones to be added. But it is needed!

Almost as unsavory a reputation might be achieved by the *Weed Collection*, which we might mention as



number six. Here, however, the curse could well be lifted by a continued experiment on weed eradication, as an educational and scientific feature. A piece of dandelion lawn, for instance, could be shown in various stages of de-dandelionizing; it would delight thousands of home owners, weary of dandelion digging.

Number seven might be its positive cousin: a collection of *lawngrasses* and of *ground covers*. Many of us are wondering how successful a lawn of buffalograss or of gramagrass might be, and whether it would do without constant watering. Others have been considering following in Queen Elizabeth's footsteps (the one with a ruff), who was interested in chamomile lawns. (*Anthemis nobilis*, also called chamomile, is a white-flowered medicinal plant of the sunflower family, with finely-cut leaves, "pleasant to the tread.") There is no telling what effect such a collection of lawn grasses and ground covers might have on the lawnmower industry.

Much more popular, however, would be the *Rose Gardens*, containing all the best and some of the lesser roses that are the pride of some of our Colorado gardens. They would be one of the chief attractions of the entire Botanical Gardens.

A *Lilac Collection* is already in process, thanks to the generosity of Vice-President Milton J. Keegan. It can well become one of the finest collections in the country: lilacs like Colorado!

A *Pinetum* is a glorified name for a collection of coniferous evergreens, which, also, should be a "natural" for this region. Different groups of pines, spruces, junipers and others will form an attraction, hard to equal, for anybody who loves our mountain scenery. It will answer a number of

questions which are constantly being asked by our tourists.

Less spectacular, but of great interest will be the *Garden of Succulents*, in which not only cacti and soapweed will be featured but all sorts of other desert plants.

As time, place and money permits, other special collections should be added, such as a *Vine Collection*, an *Iris Collection*, a good *Rock Garden*, built on sound rock-garden principles, perhaps a *Hemerocallis*, and a *Delphinium Collection*, *Plant Patent Collection*.

The entire design, comprising these various units, constitutes a beautiful show-ground.

Aside from all these tangible aspects of the Botanical Garden there are the less spectacular activities, the amount and character of which will have to be decided by the Board. Highly important are the Study of Diseases and Insects of Ornamental Plants, Plant Breeding, Training of Practical Gardeners, Plant Exploration, Plant Propagation.

All Botanical Gardens of the world are engaged in the exchange of plants, and seeds. Such exchange is already taking place with certain institutions in Holland, Sweden, Switzerland, Belgium and other countries. It can result in valuable additions to our flora.

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## CONSERVATION AND OUTDOOR EDUCATION IN SCHOOLS

Excerpts from Nature Bulletin No. 374

By ROBERTS MANN

Conservation Editor, Forest Preserve  
District, Cook County, Ill.

Given a favorable climate, two things make and keep a nation great: its people and its natural resources. The well-being of our nation depends upon the wise use of those resources. They provide our basic requirements—food, clothing and shelter. There is ample evidence that a very large portion of all teachers recognize the need for conservation and the importance of conservation education. Leading educators say that teachers realize the *why* of conservation but need help with the *what*, *when*, *where*, and *how*—how to teach the topic so that it hooks onto the personal lives of their students and is translated into behavior—how to bring conservation home to all pupils in terms of day-to-day living.

The objective should be to create background, knowledges and attitudes which will result in action, based upon a feeling of *personal* responsibility, on the part of every man, woman and child, to protect, maintain and prevent the waste of human and natural resources.

It is an accepted thesis in education that learning takes place faster and more effective through direct experience. In the outdoors, seeing vitalizes the hearing process and doing makes the learning process more meaningful, supplying a link between the classroom, the textbook, and things as they exist in nature. Further, something happens to individuals in their attitudes toward one another when they live and learn together in a natural environment

out-of-doors: there comes a marked increase in friendliness between pupil and pupils; between pupil and teacher. Outdoor education means training in educational fundamentals—in scientific thinking, in citizenship, in individual and community initiative, in tolerance, in courtesy, and in appreciation of natural resources and natural beauties. A conservation education program which succeeds in giving the child the “know how” to understand and enjoy the out-of-doors, makes him or her a better adjusted individual mentally, emotionally and physically.

We have found that nature appreciation, engendered by nature lore acquired firsthand, is the key to the door opening upon a concept of the broad field of conservation. A by-product for the individual is more profitable use of his leisure time and a fuller, richer life.

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## LITTERBUGS

It seems, according to a story in "Punch," that while one may eat peaches while strolling along a London street, "he simply cannot in daylight fling peach stones about regardless in Oxford Street. Dignity forbids . . . Better a damp peach stone concealed in one's palm."

Now peach stones are not a problem on this side of the Atlantic because, as a people, we do not eat peaches while strolling. For one thing, we never stroll. We make peach pies and preserves and we can them, throwing the stones into the disposal unit. Some think that all cars should be equipped with disposal units but why when a driver with the flick of his left arm and wrist can throw an after-lunch lunch box clear across the top of his car and into a mountain stream?

I have witnessed an expert, a Southpaw Litterburg, while he was speeding along toss beer cans over the top of his car with such accuracy that they would clear hedges and fences and land so that his contribution to the landscape was not more than one can to the lawn. One can to a lawn doesn't sound like much until you begin to count the number of Litterbugs there are to a mile.



## OTHER STATES DO HAVE ATTRACTIVE ROADSIDE PARKS

The first picture shown here is of one of the roadside parks along the Texas highways. There are tables and fireplaces and trash cans and pavement leading to the highway. There is also a duplicate park on the other side of the highway.

The second picture is of one of the Mexican parks along the road from Chihuahua to El Paso. It is merely a gravelled area with tables and fireplace and the native stone oven. There is also a barbecue pit, trash cans and firewood. The highways in Mexico are attractively clean. They do not sell beer in cans down there and other rubbish is noticeably lacking. Photos by Dwight Kelly.

Dwight suggests an argument in favor of roadside parks which sounds good to us. A park is a convenience and safety factor in giving a motorist an opportunity to get off the road away from traffic to make minor repairs on the car, such as a carburetor adjustment or to check or change a questionable tire.



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## LETTERS TO SUE

This letter I think should be shared by all who are interested in early flowering bulbs and bloom at an early time when nothing else is out.

Dear Green Thumber:

As it is my ambition to have something in bloom outdoors every month of the year, I read Ruth Ashton Nelson's article, "Winter Bloom in our Colorado Garden" with much interest and was glad to learn the names of some more things to try.

While my Johnny-Jump-Ups are not sufficiently sheltered to bloom in the winter, my mother has been picking bouquets of them from south of a rock wall all winter, and I have achieved my ambition in the past fourteen months for every month except January, so far as having something in bloom is concerned.

A year ago, in February, the season started off with a little *reticulata* iris that looked as if it had been snipped from purple-black velvet. This year, the *helleborus niger altifolius* which I put out last fall surprised me with a bloom on the 10th of February. This was a thrill as I had heard that it took the Christmas rose three years to establish itself sufficiently to bloom. (I state the species and variety because the Lenten rose, *helleborus orientalis*, is not supposed to bloom until late March.) This waxy little blossom held up for three weeks without fading a bit, and wilted one day only when the snow storm came and covered it. It was preceded in bloom one day by crocus (I understand that many people had these in bloom in January and would like to know what the earliest variety of crocus is), and followed several days later by a series of iris *reticulata*, snowdrops (*Galanthus*) of course, and tulips all of which are still blooming. These tulips were supposed to be the true waterlily tulip

(Kaufmanianna), but rather than being white and pink, they are yellow and scarlet, so I think they must be the variety known as Corona. Since this variety is much more expensive than the species, I may be mistaken. They really do have a resemblance to a waterlily when they finally open out!

Any iris lover who does not know the *reticulata* is cheating himself out of a treat. They can really only be described as little jewels, especially the amethyst-colored ones. Danfordiae, a little yellow one which looks much like a crocus to the casual eye but which displays true iris form on close inspection, is apt to come first, followed by Cantab, which is like a little piece of Colorado sky. Then, come my favorite—Hercules and J. S. Dijt (such names for such sweet little ones!), black-bronze purple and wine-purple. In addition to their lovely form and color, these all have a delicious, delicate fragrance. They come right at the time when you think you just can't live another day without going out in your garden and finding some flowers.

I was interested to note Mrs. Nelson's statement that her winter blooms come at about the same dates every year. That has been true also of the little iris.

When I hear people from other parts of the country patronizingly remark, "Colorado has such a short growing season it's hardly worthwhile to plant anything. I feel so sorry for Colorado gardeners," I think, "Hmm, there's a lot you don't know about Colorado!"

LYS HOUSLEY (MRS. H. G.)

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To protect flowers, plants and trees.

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## NEW STRAWBERRY RUNNERS

By J. M. LANCASTER

Many beginners planting Strawberries ask "Shall I cut off the runners from new plants?"

Save the first runners to make plants till you have a good amount in rows, then cut off the late runners. By spacing the new runner plants they get plenty of plant food. You would not think of placing a dozen hungry boys at one place at the table and expect them to get enough nourishment.

So do not crowd new plants. Cut the blossoms off till July 4th, then you will have fruit in August, September and October. Do not cut off the runners from the mother plant as the new ones get nourishment from the older plants until their own roots supply it, and there is no use in ever cutting the runner "cord."

I find that first year plantings mature about as many berries with runners left on as where no runners are allowed to start, and next year you have plenty of fruit or new plants to set.

Everbearers which produce in some 60 days are worked so hard that they do not last many years like other bush fruit. It is so much easier to

start a new plot than to tend an old one.

In old plantings there are so many runners and young and old plants that one gets few berries, and that has made us think that we must keep all plants cut off. I invite you out to see a demonstration as above mentioned.

For a fine variety that makes very few plants try Wayzata, which is a parent of Red Rich that makes plenty of runners. The other cross is with Fairfax, a very sweet spring, one crop, variety.

Both of these are very sweet, with large fruit, but Red Rich set too heavy do needs some thinning or you will have some nubbins. The quality of fruit is as good as the agricultural stations say it is and it freezes fine.

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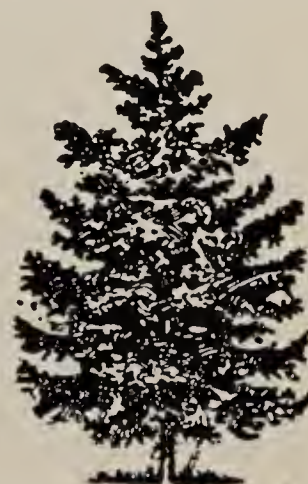
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**BE CONSIDERATE IN THE OUTDOORS**

I will treat public and private property with respect. I will remember that use of the outdoors is a privilege I can lose by abuse.

**BE CONSERVATION-MINDED**

I will learn how to practice good conservation of soil, waters, forests, minerals, grasslands, and wildlife; and I will urge others to do the same. I will use sportsmanlike methods in all my outdoor activities.

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### THE DINOSAUR DAM ISSUE IS IMPORTANT

The picture above shows the majestic Steamboat Rock at the junction of the Green and Yampa rivers. This would be largely covered if the proposed Echo Park Dam was built.

This is of concern to every conservationist in the U.S. for it will set a precedent which threatens ALL our National Parks and Monuments. It is unfortunate that the public has never been given the correct facts concerning this issue. There have been many misleading statements given out which would indicate that this dam will furnish irrigation water for Colorado and Utah, that it will benefit the surrounding area through a boom and bust of dam building, that it will make available the scenic attractions of the area, that it is the "key" to the whole Upper Colorado Storage project, that it is necessary to prevent enormous losses of water by evaporation.

Actually the facts will show that it is NOT necessary to build dams in this monument to secure all the necessary water storage and desirable water power, for there are other sites which will give all these advantages, and in some cases at much less cost and with more power. The slight additional evaporation loss is as a drop in a bucket to the other wilderness values which would be lost. We CAN have our cake and eat it too, and if ALL the people of our country had the facts they would probably vote 8 to 1 against building these dams. Write your congressmen now. It is now up to them.



July, 1954

25 Cents

# *The Green Thumb*

COLORADO'S GARDEN MAGAZINE





# LOOK AND LEARN GARDEN VISITS

**T**HIS is a combination report on the May LOOK & LEARN GARDEN VISIT and the latest on the July VISIT!

I didn't happen to be here for the May visit to the various gardens but the reports I have had since then have made me envious! The day wasn't too hot, just right for visiting gardens, and the gardens were at their best. We had approximately 175 visitors at the various gardens and hope that by varying the day, we will have twice that number for the June visits, and triple that for the July visits.

Now, for the JULY list. The date, July 24, 1954—time 10:00 A.M. to 6:00 P.M., Saturday! We hope this will bring out all those husbands and wives who haven't been able to come because of work, or baby sitting. The following is a list of the gardens to be visited on this date:

Mr. and Mrs. Clair Robinson, 585 S. Logan Street

Mr. and Mrs. Stuart Smith, 361 Race Street

Mr. and Mrs. Burnham Hoyt, 3130 E. Exposition Street

Dr. and Mrs. A. A. Hermann, 131 S. Birch Street

Mr. and Mrs. Carleton Goodwin, 5020 E. Dartsmouth, University Hills

Mr. and Mrs. Donald C. Bromfield, 6320 E. 4th Avenue

Mr. and Mrs. W. L. Prouty, 100 Jersey Street.

The Clair Robinson's have a gem of a tiny garden which is so well done that you mustn't miss it. George will be there in the afternoon as the garden expert, and he loves the place!

The Stuart Smith garden at 361 Race Street is quite new, but one that you can learn from. New walls, new terraces and flower beds made to order are the features of this garden.

The modern garden as a background for a modern home is that of the Burnham Hoyts. It is very photogenic also, so don't forget those cameras, for here you will find good design, maintenance and material.

Dr. and Mrs. Hermann, 131 S. Birch Street, are such dears to let us all go through their wonderful garden again this summer. After seeing it with the group from the Men's Garden Club Convention, I wonder that they can let another group go through. They want it, so let's not disappoint them, and, incidentally, yourself if you miss it!

Mr. and Mrs. Goodwin, 5020 E. Dartsmouth, out in University Hills, won a neighborhood prize for the best new garden in their district last summer and they have done so much in the short time their garden has been in existence! They are reported to have the best lawn in Denver! and lots of flowers all in bloom!

We are sorry that Mrs. Hubert Work, on south University Boulevard is not able to have her garden on this visit. Perhaps, another time! It would have been wonderful to wander around in her spacious gardens under those wonderful trees!

The Donald C. Bromfields, 6320 E. Fourth Avenue, have that new and unique thing,—the newest of walled gardens in the modern manner! The use of brick in the entire garden is amazing and beautiful, with practically no problem of maintenance for there is no lawn at all in the back, and just a small one in front. Patios, walks, and flower growing areas are all done in brick to good advantage, and here again you will want your cameras!

Last, but not least, Mr. and Mrs. Prouty, 100 Jersey Street, have a rock garden! This one is entirely dif-



ferent, but certainly worth your seeing. Have Mrs. Prouty tell you how they happened to start this immense project, and she should have it well planted with a riot of color there now. The living picture they have from their living room is wonderful.

See you all, Saturday, July 24, 1954!

SUE KELLY

---

## TREES ALONE

CLARA AIKEN SPEER

Christian Science Monitor, Jan. 22, 1954

Trees do grow better where they stand alone,

When in free symmetry their branches flow,

And when their leaves have full access to sun

And feed through roots with ample room to grow.

And yet trees cluster into companies; Perhaps each one is willing to let slip Something of self-expression, of self-will,

For greater gladness of Companionship.



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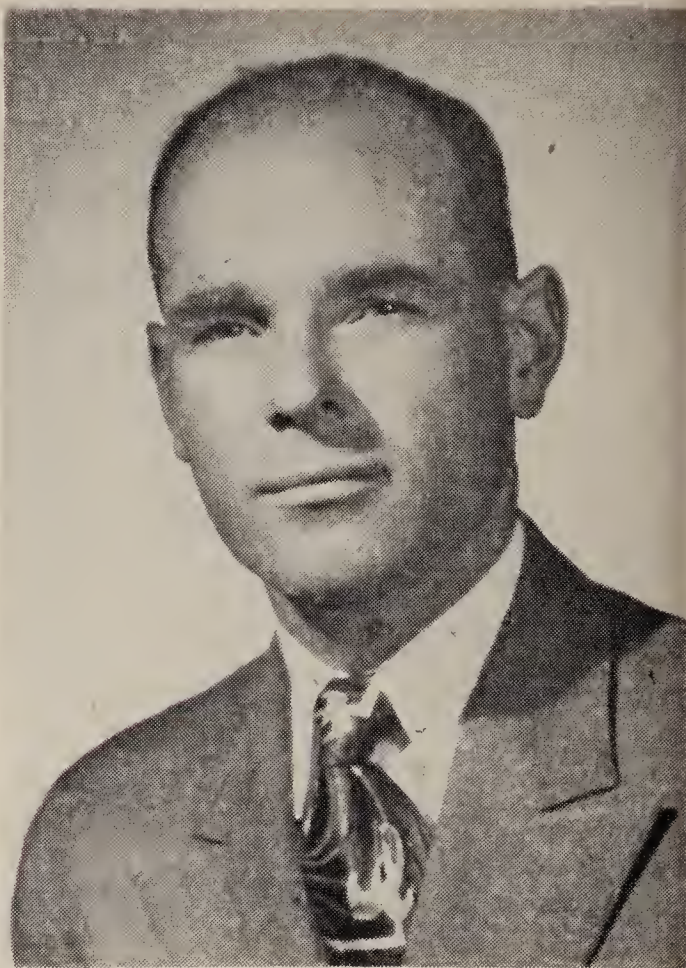
## TREE EXPERT FIRM TAKES ON A PARTNER

Announcement has recently been made that the Swingle Tree Surgery Company has accepted Mr. Earl Sinnamon as a partner.

Mr. Sinnamon has been working with the firm for several months and has made himself so valuable that he has been invited to partnership. He was Denver City Forester for a year or so some two years ago and has been in private landscaping work.

He comes from Connecticut originally and has an extensive education in forestry subjects. He is a director of the Colorado Forestry and Horticulture Association and has helped this organization in many ways, recently having managed the successful Plant Auction.

We wish him success in his new association.



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# The Green Thumb

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Vol. 11

JULY, 1954

No.7

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## HORTICULTURE HOUSE GARDEN

Ten years ago when Horticulture House was first opened, some of our good friends made a plan for the landscaping of the small yard around the building. Shrubs, plants, bulbs and several small trees were planted and marked. Ten years makes a lot of difference in any landscaping. One of the trees had to be removed last year—it had outgrown its boundaries. Some of the bulbs and smaller plants have been crowded out.

Recently one of our directors asked "what can we do to make Horticulture House garden an oasis in a business and apartment house district."

Mrs. Vella Conrad kindly consented to act as chairman of a committee to look into the matter. She not only looked, but she consulted our landscape architect director, M. Walter Pesman, and then action was started. Scott Wilmore donated a

*Picture below shows the new etching on the front door glass at Horticulture House, donated by artist Pete Spomer. This is a much appreciated contribution.*



dozen Floribunda roses, and, during the last week in May, these were planted in a worn out piece of lawn near the front entrance. It was pretty late for planting roses, but Mrs. Conrad has a green thumb. There was plenty of fertilizer, not too much volunteer labor, and we are counting on most of these roses coming thru.

There will be more action later, involving the liberal use of pruning shears on the hedge and shrubbery, the replacement of identifying labels, etc., so when Mrs. Conrad gives you a ring, please help her out. She is doing the Association a great favor, considering that she has a large garden of her own, with 285 roses, 50 varieties of iris and many perennials, to take care of.

I almost forgot to mention that Mrs. Conrad is also responsible for the bed of beautiful hybrid tea roses at the south side of Horticulture House. These were planted last year. Our thanks to you, Vella.

FRED R. JOHNSON

## Iris Rhizomes to Members

Our director, Lemoine Bechtold has announced that he will give 6 rhizomes of his choice iris to every member of this Association who will show their membership card, and will give 6 extra (12 total) to every new member of this year and 6 extra to any old member who secures a new member.

The time to get them is Saturday, August 14 and the place is Lemoine Bechtold's home at 4201 S. University Blvd. There will be someone there to show you what is available and possibly help dig them, but you will have to go there to get them and possibly help dig.

These are valuable iris and we appreciate very much Mr. Bechtold's fine offer.





### Colorado Forestry and Horticulture Association

Organized in 1884

"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to make available correct information regarding forestry, horticultural practices and plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."

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## ROSE SOCIETY NEWS

The Denver Rose Society will hold its July 8th meeting at City Park—6:30 P.M. This is an opportunity for the members to see the gardens with Mr. Robinson on hand to answer questions.

June tours included Dr. Bouslog's—Greer's—Searles and Mrs. Jorgensen's gardens. July tours will cover southeast Denver gardens.

Dr. R. Milton Carleton was the featured speaker for June 9th meeting. He spoke on "New Discoveries in Horticulture." Dr. Carleton always offers many new and interesting things.

Roses to you! Mr. Wilmore, Mr. Marshall and Mr. Eiche. Mr. Wilmore and Mr. Marshall supplied rose bushes to complete our beds at City Park. Scott also came to the rescue with men to get the beds all in order. Mr. Eiche, with the RA-PID-GRO supplied the material for foliar feeding. Our thanks to all of you.

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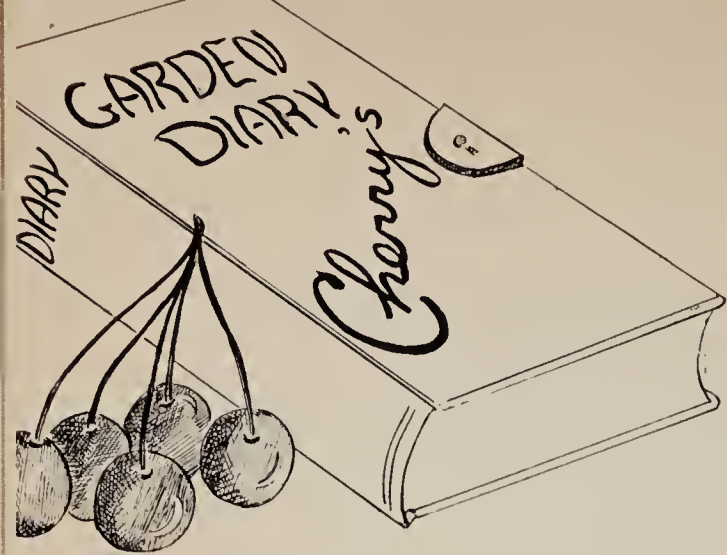
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## CHERRY GETS IN THE TREADMILL OF WEED-WATER- CULTIVATE

**J**ULY 3. I always hate to go out on the highways during the big holidays, but that is the only time that Red can get off, so we are planning on a fishing-camping trip for three days. Red can't get off until noon so I'll have to rush around and get the garden in shape for the days that we will be gone in addition to packing food and camping equipment.

"Weed-water-cultivate" is sure the story for gardeners this weather. I'll have to soak the lawn and those newly transplanted annuals so that they will go for several days even though it gets very hot. Of course we will get the usual fourth-of-July storm, but that is likely to be a quick downpour that will not soak in much. Watering thoroughly, Dad tells me, is good for most plants anyhow. I'll just have time to pull the largest weeds and hope that they do not smother out everything while we are gone. I will not be able to cultivate much because everything will be wet. I'll have to take the chance of the ground baking.

Sunday, July 4. In spite of the time of year it got rather cold in the hills where we slept last night. We should have brought heavier clothes and sleeping bags. As we looked out over the little park where we camped, just as the sun came up, there was a wild riot of color from the variety of wild-flowers that were in bloom. Mother named some of them and had to refer to "Meet The Natives" to get the others. I'm going to ask Dad, when I get home if some of these natives can not be grown in my own garden, at home.

As I strolled around this morning, just being lazy I got to noticing what a nice job of landscaping Nature had done in places. There was the little open glade surrounded with Aspen and Spruce, and the rock garden planted by Nature to Rock fern, Heuchera, Sedum and Harebells. (That could be duplicated, on a small scale at home, I'll bet). After all, I expect that most of a landscape architect's ideas come from Nature at some time or other.

July 5. The pleasure of being out in the wild open places is beginning to dim a little today. We run into swarms of mosquitos around the lake, I walked into a patch of stinging nettles, and I left my sun suit on too long yesterday and have a good sunburn today. It sure is fine to get out like this, but unless we stay long enough to get toughened up to it, is also mighty nice to get back home again.

July 10. I have been so busy since last week-end that I have had little time for the garden and it is amazing how things (especially the weeds and bugs) have grown in those few days. I had to get out the sprayer and shoot a lot of bugs that were just getting started. I found a few leaf-hoppers, aphids, spidermites and leaf slugs on my roses. I asked Dad Dendron to tell me what spray to use for each. He told me that for most things it was good practice to find the particular bug that was doing the damage then get a spray that would control that particular insect, but that so many things almost always attack roses that it was good practice to dust or spray with an all-purpose insecticide and fungicide about every ten days.



Mother talked to Mr. Pesman and he told her that there were many of the wild flowers suitable for cultivation. The Penstemons are easy to transplant and some of the Saxifrages, heuchera, Rock ferns and Sedums moved easily when they were dormant. The trouble is that when they are in bloom it is the poorest time to move them and when they are out of bloom it is hard to find them. I wish that some progressive nurseryman would start raising these plants from seed so the average home owner could buy them and feel safe in their growing and also be sure that they are not trespassing on someone's property when they try to collect them.

July 11. The weeds sure got a head start while we were gone and now it takes many times the effort to get rid of them. I came in tonight with my hands so raw and cracked that they stung when I washed the dishes. I tried to get Red to wash the dishes but he had some very important chore to do outdoors, all of a sudden.

The garden looks pretty good and just pretty. Gardens may be a lot of work but they are worth it. That one four foot iris stem with four perfect iris blooms open at once was something to admire.

July 17. We are still going through the weed-water-cultivate routine, but I noticed that the one experimental plot where I had mulched it heavily with peat was still moist underneath while other bare spots were hard baked. I am going to try out several materials to see which works the best as mulch.

I can surely tell the difference in the lawn now where I watered it deeply last spring and where it was sprinkled just a little every day. The frequently watered lawn looked fresh while we were doing it, but now it has such shallow roots (according to Dad) that we can't give it enough water to keep it green. The deep-watered lawn, in contrast, looks quite nice with a watering once a week or ten days. I am inclined to think that many of the popular sprinklers are not very efficient and waste water by having too much fog to blow away or throwing out so much water close up that they have to be moved before the water has had time to soak in.

July 18. This morning I got up early and walked slowly around the garden. I found several things in bloom that I had forgotten I had. I also noticed several things with browning leaves and a few with yellowing leaves. It is too early for them to be ripening at this time. I called Dad Dendron and told him about the browning leaves. He says that when leaves turn brown around the edges it is usually an indication of a soil poisoning (probably too much alkali). Over the phone Dad would not commit himself, but told me to check and see what I had done wrong. He said that it might be too wet or too dry, too hot or too cold, not getting enough sunshine, or too much, or that the soil was too poor or over-fertilized. (It sounds as though he was kidding me, though I expect that he *could* tell more about the trouble if he could see it).

July 24. In rushing around trying to get the garden in shape I neglected to notice how ragged some of the shrubs and hedges had gotten. I guess that that will be my job today. When I got the hedge sheared down to a reasonable size it looked like a picked chicken. Dad came by and noticed how the hedge looked. He says that the only way to have a really good clipped hedge of any material is to trim it FREQUENTLY. The lawn looks a little weak and I suppose that it needs a little shot of fertilizer. I've checked all the



various fertilizers on the market and find that they all claim that their product is best. I am going to get some small quantities of several kinds of fertilizers and try them out in marked rows somewhere.

July 25. I noticed those yellow leaves on the barberry and Ninebark shrubs again. I'll call Dad and see what he thinks about them. He said that this condition was called chlorosis and that it could often be controlled with applications of Iron Sulphate.

My tulip tops are completely withered now, so, before I loose out where they were growing, I'll dig them and move them where they are out of the way.

July 31. Here it is the last of July. It can't be too long now until the really hot weather is over and the nights begin to get chilly. I find that there are a lot of things that I should have done but forgot and there are chores now apparent that I cannot do because everything is in full bloom and leaf. At least I can cut off those old Iris stems and clean up the poppy border. What a whale of a difference it makes when everything is trimmed up and in order.

I'm going to get a garden notebook and head it up for all twelve months, then I can write in July, "move the tulips, dig out the Oriental Poppies or trim the lilacs." Then when the proper time comes, I will have a reminder to do the chores of the season.

The garden has been a lot of fun and enjoyment but I'll be glad when the things begin to ripen up and I can relax a little. I'm beginning to think that that old rule, "never plant more in May than your wife can care for in July" is a good one. Red got all enthusiastic early in the spring and now I have it all to care for and it is such a continuous chore to keep it all in trim that I'm afraid that I'm losing some of the pleasure of gardening. Mother says that gardening should always be fun, and that one should never have a garden so large that he has to rush and hurry to keep it up. Gardens should be for puttering.

## ARE THE NEW ROSES BETTER?

A. L. SIMPSON

ON the whole I think they are. For one thing most of them have a more upright habit of growth making them easier to prune and allowing a little closer planting, though I certainly would not want to see them crowded. Also I am able to get more long straight stems and with a few exceptions they are more resistant to mildew. Though some came to us from northern New York, some from Oregon and some from California, they all seem to like us about equally as well here in Idaho. For protection from both heat and frost, we maintain a three to four inch mulch of

decomposed leaves during the growing season and add an equal amount of mixed cow manure after the first freeze.

In writing of new roses I had in mind going back ten years or so but feel justified in going a bit farther to include in my opinion our finest rose, Charlotte Armstrong. To how many of her descendants, some of her fine qualities have been transmitted, I wouldn't know, but they are many. One of the latest is Dean Collins. We planted twenty a year ago and although it is too early to be sure, we like what we have seen so far.



Here are a few as we see them in the Boise valley. We have them in groups of from ten to fifty which gives us a pretty good check.

SAN GABRIEL, upright and sturdy, about 30 inches, fair foliage, good stem, nice bud, stands the sun well.

SUTTERS GOLD, four to five feet, good foliage, never mildews, perfect buds, not much when fully open, never quits, our visitors love it.

HELEN TRAUBEL, four to five feet, fine form and foliage, stems are good, buds long, open flowers hold well, not a free bloomer with me.

PEACE. We have 140 of them, just like it is elsewhere, always on the job, comes into bloom a little later than some, does not have the butter yellow color it has in the east, would be better if we could shade it a little.

CHRYSLER, a vote of our visitors would probably show it to be their favorite red, and MA PERKINS seems to lead all the Florabundas though a lot of votes would go to FLORADORA and FASHION. There ought to be at least a dozen more on this list like CAPISTRANO, MISSION BELLS, LOWELL THOMAS, BUCCANEER, and TALLYHO, but there has to be a limit.

Nothing adds so much in the rose garden in the early summer as watching the debutantes strut their stuff. Last year we had the two All Americas MOJAVE and LILIBET both promised well, though our winter may prove a little tough for Lilibet. Of twenty plants set last spring, but three or four are on the doubtful side.

DEAN COLLINS looks ready to go and FROLIC and EMBERS look fit. If Embers goes on from last year's beginning its sponsor has certainly hit the jack pot.

This year we have GOLDEN MASTERPIECE rated as good or

better than BUCCANEER, which will take some doing.

ROUNDELAY, this one should be in '54 catalogs.

LAJOLLA, a camellia pink and another daughter of Charlotte Armstrong.

TIFFANY, no description of this one yet.

REDCAP, a red FLORADUNDA, blooms are claimed to be almost of Hybrid Tea size.

Probably not all of these will stand up under present day competition and some may perform well in some sections of this big country and prove a disappointment in others, which proves the value of gardens like this one in Caldwell, the one now being planted in Denver and many others scattered over the States. Wise rose buyers visit them with pencil and note book, you don't have to buy a Pig in a Poke.

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Many attempts have been made to measure the average value of a tree says the National Arborist Association, but the monetary range has been so wide that such efforts have not been too successful. A tree like the Charter Oak, for example, for sentimental and historical reasons might be priceless. One man may value a tree that provides him with shade, fruit and comfort at thousands of dollars; another, who planted a tree for each child, some of whom have grown up and been killed in the wars, considers each tree priceless.

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Fall color in trees is one of the principal tourist attractions of the Northeastern United States, one of the few areas in the World having such brilliant foliage at that time, says the National Arboist Association.



## TALL BEARDED IRIS

By DON A. WEBER

Secretary of the Colorado Iris Society

THIS article will deal almost exclusively with the tall bearded iris, because they are the ones most popular with general gardeners as well as with the majority of iris specialists, and also because they are the ones in which the greatest improvements have been made in recent years. It might be well, however, to give just a paragraph to a statement of where these tall bearded fit in the total iris family.

Botanists recognize about 150 species of iris, most of them totally unimportant to gardeners in Colorado. For simplification, the figure 150 can be reduced to three basic classes: the beardless, the bulbous, and the bearded. The beardless include the Japanese varieties which look beautiful in catalogues but are dismal failures in Colorado, the Louisiana varieties which are being extensively hybridized and which someday possibly may be suitable for this region, and the Siberian varieties which do well here but are quite limited in their color range as yet. The bulbous include difficult rarities as well as the popular little Dutch iris which are generally known to gardeners here. The bearded class is made up of dwarfs which bloom quite early and hug the ground, the intermediates which come a little later and average eighteen inches in height, and the tall-bearded which bloom in May and June and average about three feet in height.

In the rest of this article an attempt will be made to answer the questions most often asked by visitors in Colorado gardens that feature tall bearded iris.

Is it correct to call these modern varieties "flags"? Not if your host

has anything sharp or heavy in his hand at the time.

Which is the correct plural, "iris" or "irises"? The national president, in the latest issue of the American Iris Society Bulletin, has come out in favor of the word "iris" for both singular and plural. However, it is not incorrect to use the older form.

If I plant some of these new and expensive beauties, won't they eventually revert to wild "flags"? No. Each iris grows on its own roots, cannot be grafted, and for increase must await the slow natural multiplication. A new variety starts its career as a single plant. It will increase but never change.

If I buy sight unseen from catalogues, how can I know whether I am buying wisely? This is a good question, especially since many otherwise trustworthy garden dealers limit their iris offerings to obsolete flowers that no iris lover would have in his garden. A handy rule of thumb is to check and see if the variety is listed as one of the 100 favorites reported annually by the total membership of the American Iris Society. For the most part, this list is made up of varieties old enough to be widely grown and time-tested, and in general inexpensive yet still very good. Do not consider it the 100 best, however. The best are still too new and expensive to be in a popularity poll. For them, turn to the catalogues of iris specialists.

How expensive can an iris be? The variety "Prairie Sunset" sold for one hundred dollars per plant when it was introduced in 1939. At that time there were only about ten plants in existence. They have, of course, mul-



tiplied until now you can buy one for a dollar. The most expensive iris being introduced in 1954 is "South Pacific" at fifty dollars. Each year it will get cheaper. Wait until 1970 and buy it three for a dollar.

*Don't these people who develop new varieties get rich charging such prices?* Hardly. The hybridizer first had the task of picking suitable parents for his future variety. He then had to make the cross pollination to force the mother variety to form a seed pod, and if she didn't like the husband he had selected for her, no seed would form. If a seed pod did form, he had to keep it properly tagged and a record made in his books so the pedigree would be correct. After many weeks, if hail did not intervene, he harvested the pod and got from it perhaps ten or fifty seeds. These he planted, keeping the spot properly labeled and watered for perhaps one, two, or three years until the seeds sprouted. One or two years later these seedlings bloomed for the first time. Each looked different from its brothers and sisters out of the same family pod. Almost all of them were muddy junk. It is estimated that only one seedling out of ten thousand is worth putting on the market as a real improvement in iris. So, after many years of work, after nursing the seeds from hundreds of pods, the hybridizer perhaps earned a few hundred dollars. What happened to the 9,999 brothers and sisters? They had to be dug up and destroyed before they could multiply their ugliness.

*How many people are taking part in this hybridizing venture?* Dozens of people in forty-seven states. (All but Florida.) Work is also being done in Canada, New Zealand, and England on a much smaller scale than in the United States. Until World

War II, France turned out many fine varieties. One of them, "Louvois," is still well worth having.

*How does a new variety get its name?* The hybridizer registers his iris and the name of his choice with the American Iris Society.

*How many named varieties are there?* Thousands of tall bearded have been named and registered. Hundreds more are hopefully put forward each year. But only a small number meet favor with the dealers and go on the market. Once on the





market, many fail to impress the judges and so fail to win an "Honorable Mention" (HM in your catalogue). Even fewer each year are given an Award of Merit (AM). Only one iris per year can win the Dykes Medal (DM).

When did this movement to improve iris begin? Very recently, as time goes. In its way, the progress of the iris has been closely parallel to that of the automobile, both in time and degree. Minor efforts were being made at the turn of the century. The oldest variety on the market today came out in 1925. Unfortunately, most American gardens are museums for iris of "Model-T" vintage, simply because most gardeners hate to throw plants away. With very few exceptions, however, varieties more than 15 years old are not worth growing, even in mass plantings where economy is important. Dozens of good varieties only a few years old are now in the dollar class, and iris multiply well.

When I am looking at an iris in bloom, how do I judge whether it is

really worth owning? Probably the color of the blossom is the first thing people notice. If you like the color, consider its size in comparison with other varieties of the same general color. Some like them big; some don't. Shape of the blossom is important. The three top petals, known as the standards, should not flop open but should form something of a dome. The three lower petals may droop or flare out but they must be wide enough not to look pinched and not so long that they look like straps. No two varieties have exactly the same shape. Avoid those which have discordant or overly conspicuous streaks at the top of the falls, an area known as the haft.

Besides color, size, shape, and freedom from unpleasant markings, what else should I look for in the flower? Some otherwise good varieties fade badly in the hot Colorado sun, after the first day. Look for good substance; avoid those which are tissue-paper thin. See if the several blossoms are well spaced on the stalk so they do not crowd each other. The widely grown "Blue Rhythm" is an example of almost perfect placement of blossoms. Length of blooming period is important but harder to check. Some varieties bloom themselves out in a week or ten days; others put on a good show for almost a month.

Are there other considerations besides the flower? Yes. Some iris have abundant foliage while others are skimpy. Since the leaves are with you all summer this matter of foliage may be important to you. Rate of increase is certainly important. Some varieties increase slowly and other multiply rapidly. On this matter there is little printed material available but your iris-growing friends can help you a lot. Then there is the problem of tenderness. Modern tall bearded iris





go back to natives from many parts of the world. Some of these ancestors came from cold countries and are very hardy but others from warmer parts of the world are tender. Iris enthusiasts check the percentage of new varieties before investing in something that may not live in Colorado.

*If my iris are to be in a general border, what can I plant with them to give color during the summer?* Iris like to have sunshine get at the ground above their roots all summer, and they resent too much moisture. Therefore, most iris growers do not mix them in a bed with summer flowers. It can be done, however, if you select flowers that will not shade the iris too much. In any event, do not cut back the iris leaves after the blooming season. This practice, though common, is harmful.

*What about the new pink iris?* So far as is known, the world's first pink iris bloomed just a few years ago right here in Colorado, in the hybridizing plots of Dr. P. A. Loomis of Colorado Springs. The seedling was small and of faint color but Dr. Loomis recognized it for what it was to become—the founder of a new race. From that early variety, named "Seashell," combined with bigger whites, yellows, and reddish blends, have come many remarkable new clear and big pinks. Some are tender in Colorado, but the following are among those that have proved their worth in most gardens here: "Spindrift," "Pink Cameo," and "S.Q. 72," all of which are now plentiful and therefore in the dollar class, though still worthy garden subjects. Newer pinks that have proven to be successful in most gardens here include the beautifully shaped "Twilight Sky" at two dollars and "Pink Formal" at six dollars. "Cherie" at five dollars is

the most highly honored of all pinks and probably the most graceful, but some—not all—Colorado gardeners find it lacking in hardiness. "Cloudcap" is the biggest pink in general commerce, sells this year for ten dollars, and is considered hardy by the majority of Colorado gardeners. "Mary Randall" at twenty dollars is very new, quite deep in color, and so sought after that it is difficult to find. It has not been grown here long enough for its performance under Colorado conditions to be known. And in the gardens of hybridizers, notably Hall and Fay of Illinois and Muhlstein of Utah, there are seedlings which will be named and go on the market in a year or two and which are reported to put all present pinks to shame.

*Are there any really red iris?* Those that were called reds ten years ago are now considered purples. With each new crop of seedlings, iris get redder, but true spectrum red is probably still years away. "Red Gleam," "Display," and "Red Valor," all in the dollar class, are about the reddest of the older varieties and do well here. Newer and apparently hardy here are "Technicolor" at seven dollars, and "Pacemaker" at six dollars. "Defiance" was introduced by





Thompkins of Iowa last year at thirty dollars and will be bloomed in this area for the first time this year.

For Colorado conditions, what would you consider the best single buy in each color class, excluding the expensive ones? There are just too many for any general agreement, but the writer will put himself out on a limb with the following list: Best pure white is "Spanish Peaks" at two dollars. Best white with yellow throat is "The Capitol" at one dollar. Best white with faint blue tint is "Snow Flurry" at one dollar. Best white peppered blue is "Blue Shimmer" at one dollar. Best white and purple bi-color is still old (1936) "Wabash" now down to fifty cents. Best light blue is "Distance" at two dollars. Best medium blue is "Blue Rhythm" at one dollar. Best purple is "Vatican Purple" at one dollar. Best blue and violet bi-color is "Lothario" at one dollar. Best so-called "Black" is "Black Forest" at one dollar. Best mulberry is "Elmohr" at one dollar. Best orchid is "Dreamcastle" at two dollars. Best rose "Three Oaks" at one dollar. Best reddish brown "Solid Mahogany" at one dollar. Best red "Display" at one dollar. Best red and yellow bi-color "Gypsy" at seventy-five cents. Best copper "Arab Chief" at one dollar. Best cream "Desert Song" at one dollar. Best light yellow "Cloth of Gold" at seventy-five cents. Best deep yellow "Ola Kala" at one dollar. Best brown "Casa Morena" at one dollar.



Best pink "Twilight Sky" at two dollars. To repeat, the word "best" as used above means best in the low priced group, in the opinion of the writer.

Would it be sensible for me, a general gardener, to join the Iris Society? You would be well repaid for your dues. The national organization four times each year will send you its bulletin, which is actually a thick magazine packed with information you should have on everything from growing conditions to new varieties. You will also find yourself on the mailing list of a score of iris dealers whose beautifully illustrated catalogues you will thoroughly enjoy. Membership in the American Iris Society will automatically make you a member of Region 20, which is the Colorado Iris Society, for which there are no dues. Through the Colorado Iris Society you will meet iris lovers in your locality, see their fine collections, and have an opportunity to take part in exchanging plants. In effect this will enable you to get newer and finer things than you could probably afford otherwise.

To join, send four dollars for your annual dues to: The Secretary, American Iris Society, 3902 Hillsboro Rd., Nashville, Tenn.

The Nashville office will then notify Colorado of your membership.





## IRIS POPULARITY POLL

Conducted in 1953 by the American Iris Society

This tabulation must be considered as the established favorites, and not as a list of the best iris. The best are too new to show up on such a poll. As a buyers' guide this list has value. But Colorado gardeners should bear in mind that any nation-wide tabulation such as this does not reflect peculiarities of climate and soil that might hamper some varieties in one region or another.

Rank '53	Name	Votes	Rank '53	Name	Votes	Rank '53	Name	Votes
1.	Ola Kala .....	890	35.	Tiffanja .....	556	68.	Golden Russet ....	435
2.	Blue Rhythm .....	877	36.	Casa Morena .....	548		Gypsy .....	435
3.	Lady Mohr .....	830	37.	The Red Douglas .....	545	70.	Los Angeles .....	432
4.	Chivalry .....	827	38.	Extravaganza .....	544	71.	Arab Chief .....	430
	Sable .....	827	39.	Grand Canyon ....	543	72.	Russet Wings .....	428
6.	Great Lakes .....	816	40.	Three Oaks .....	541	73.	Treasure Island....	421
7.	Blue Shimmer.....	791	41.	Lynn Langford....	534	74.	Elsa Sass .....	416
8.	Elmohr .....	787	42.	Sylvia Murray ....	527	75.	Tobacco Road ....	411
9.	Helen McGregor..	756	43.	The Admiral .....	512	76.	Cahokia .....	410
	Snow Flurry .....	756		Vatican Purple ....	512		Violet Symphony..	410
11.	Solid Mahogany ..	717	45.	Cloud Castle .....	504	78.	Spun Gold .....	408
12.	New Snow .....	715	46.	Berkeley Gold ....	502	79.	Moonlight Ma-	
13.	Minnie Colquitt ..	710		Spanish Peaks ....	502		donna .....	404
14.	Master Charles ....	698	48.	China Maid .....	498		Sunset Blaze .....	404
15.	Amandine .....	697	49.	Black Forest .....	496	81.	Mexico .....	403
	Wabash .....	697	50.	Firecracker .....	492	82.	Harriet Thoreau ..	402
17.	Argus Pheasant....	692		Pink Formal .....	492	83.	City of Lincoln....	395
18.	Pink Cameo .....	682	52.	Blue Valley .....	488	84.	Zantha .....	392
	Ranger .....	682	53.	Katherine Fay ....	483	85.	Cordovan .....	389
20.	Mulberry Rose ....	681	54.	Distance .....	481	86.	Fantasy .....	386
21.	Cascade Splen-			Ormohr .....	481	87.	Matterhorn .....	384
	dor .....	666	56.	Gudrun .....	468	88.	Louvois .....	383
22.	Pinnacle .....	657	57.	Chamois .....	459	89.	Danube Wave ....	376
23.	Bryce Canyon ....	653		Lothario .....	459	90.	Golden Majesty....	374
24.	Amigo .....	652	59.	Missouri .....	455	91.	Sierra Blue .....	371
25.	Cherie .....	647	60.	Garden Glory ....	453	92.	Indiana Night ....	367
26.	Chantilly .....	641	61.	Tiffany .....	449	93.	Shining Waters....	365
27.	Lady Boscawen....	626	62.	Fair Elaine .....	447	94.	Melody Lane .....	362
28.	Cloth of Gold.....	600	63.	Golden Fleece....	446	95.	Goldbeater .....	358
29.	Rocket .....	599	64.	Gloriole .....	445	96.	Golden Treasure..	349
30.	Pierre Menard ....	589	65.	Truly Yours .....	444	97.	Twilight Sky .....	348
31.	Desert Song .....	587	66.	Winter Carnival..	441	98.	Vice Regal .....	347
32.	Dreamcastle .....	586	67.	Pretty Quadroon..	438	99.	Ballet-Dancer .....	346
33.	Azure Skies .....	568					Bandmaster .....	346
	Prairie Sunset ....	568					Ming Yellow .....	346

### WHAT DO WE GET?

From "Natural Food and Farming"

"We squander health  
In search of wealth.  
We scheme and toil and save;  
Then squander wealth  
In search of health,  
And all we get's a grave.  
We live and boast of what we own—  
We die and only get a stone."

ANON

### IF YOU ARRANGE FLOWERS

Send us YOUR NAME for a FREE  
copy of our informative  
News Letter

### THE NORTONS'

House and Garden Shop

LAPORTE

COLORADO





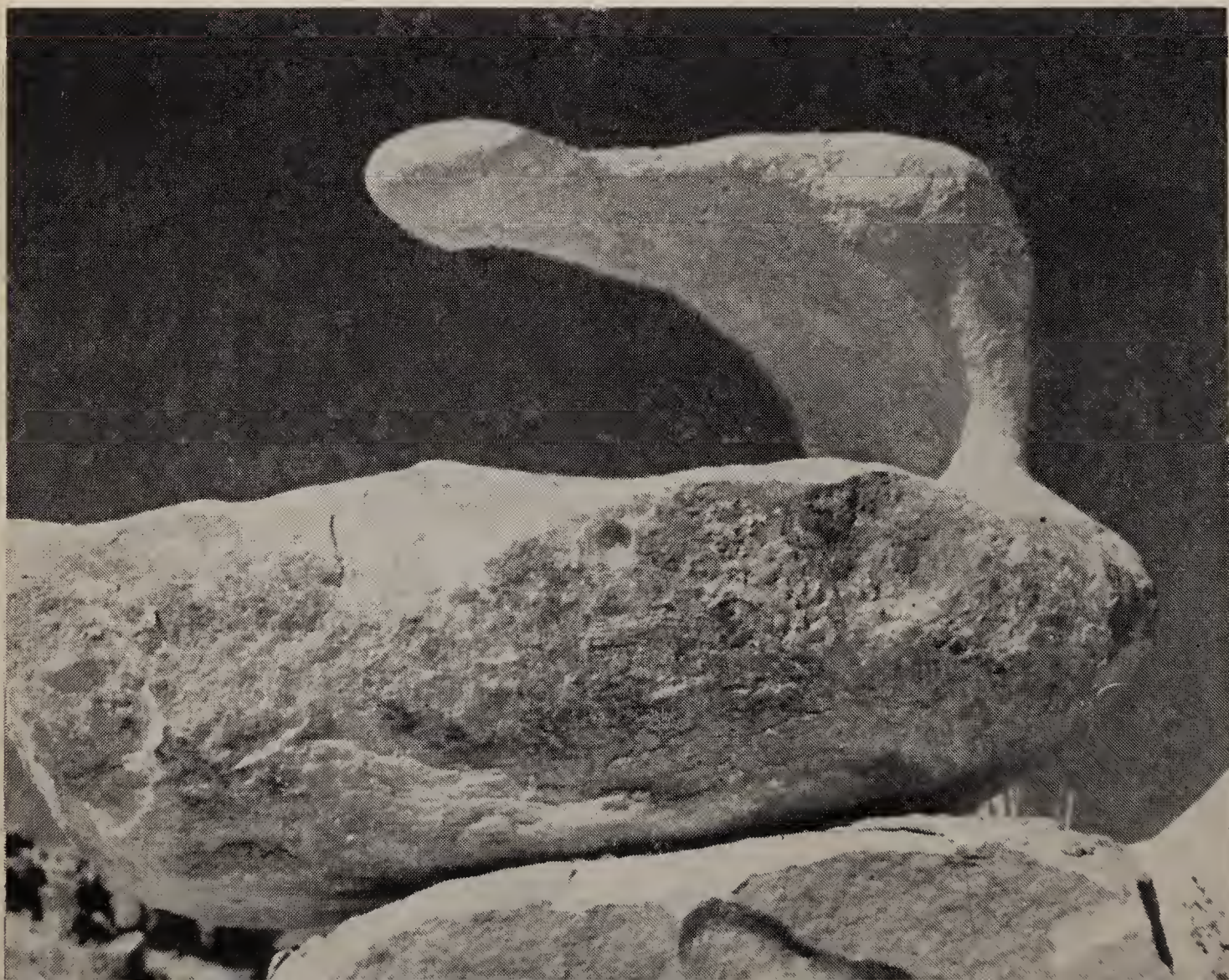
## NATURE, MASTER SCULPTOR

**O**UT on the desert, south of Green River, Utah, one day last spring we stopped to eat our lunch in the scanty shade of an outcrop of soft sandstone. Laying all around were the finished and partly finished remains of what appeared to have been a school of sculpture. There were no evidences, however, that any other than the forces of Nature had ever been here before.

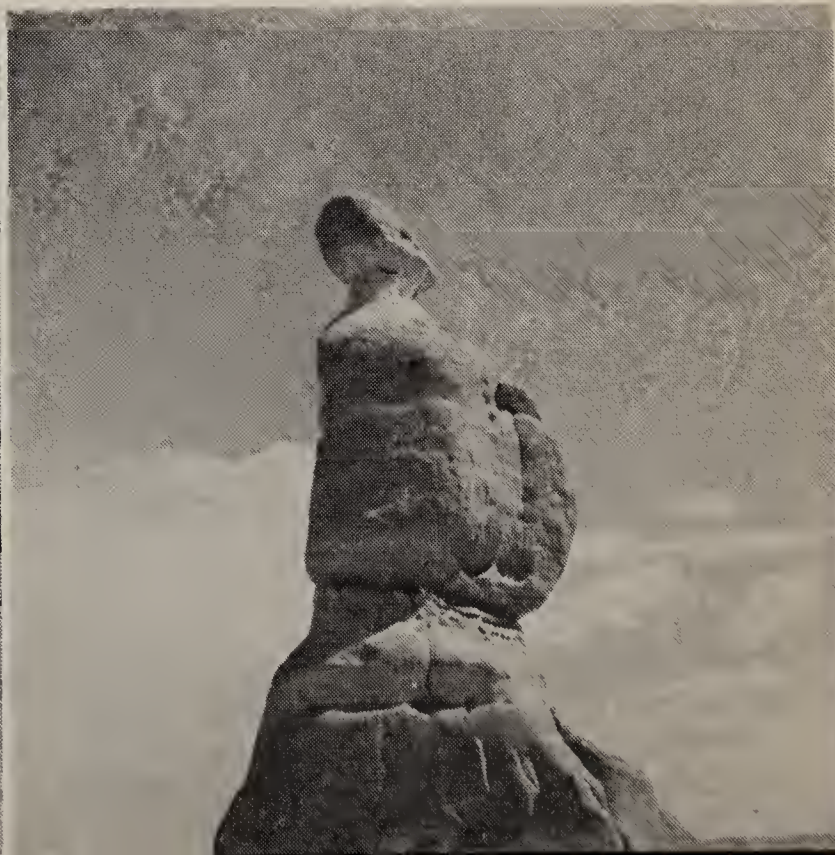
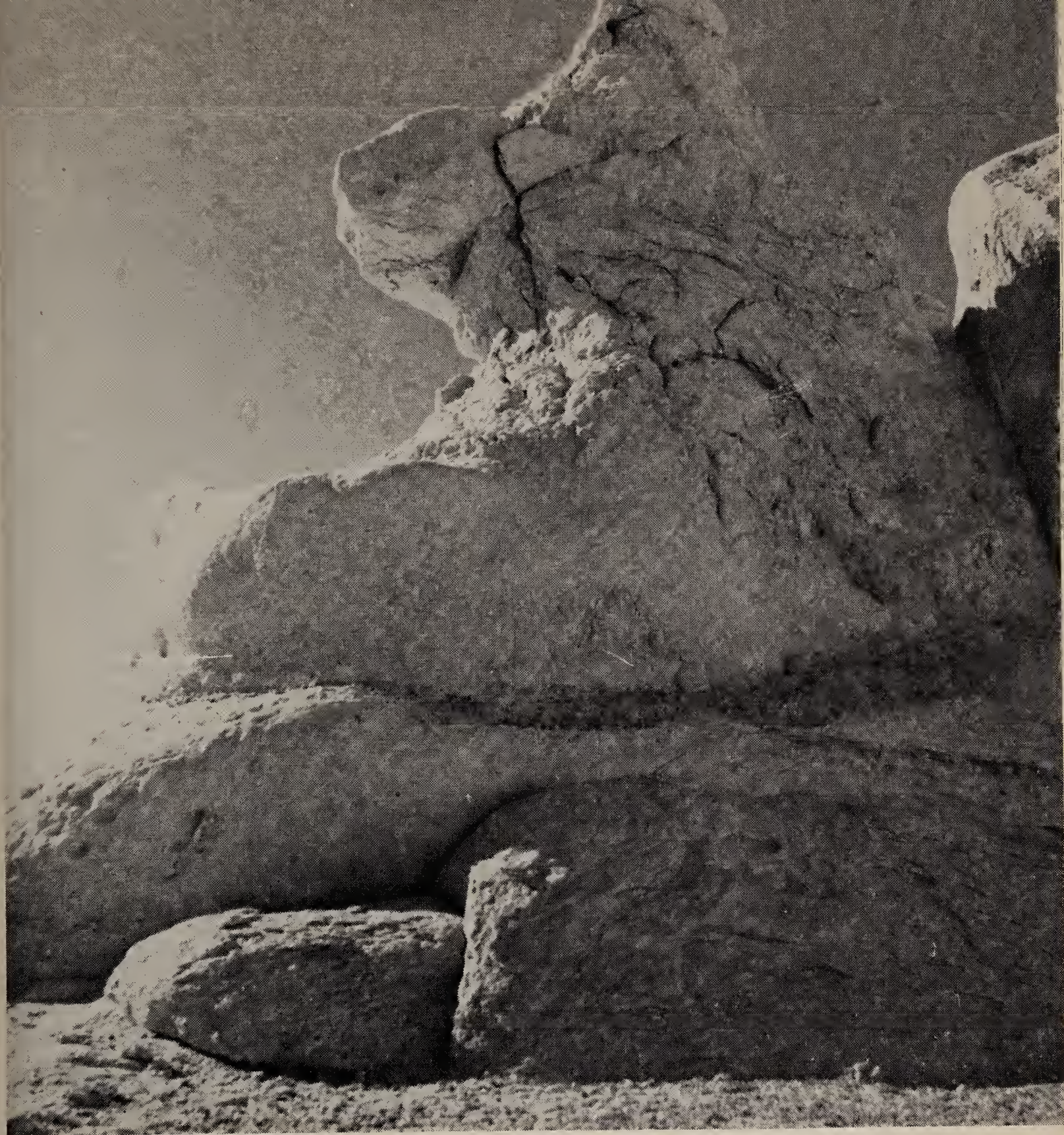


To the right appears a very good polar bear, to the left a camel and sheep. Below to the right is an Indian squaw and an incomplete torso. Below to the left is a duck on her nest.

Beauty, truly, is where you find it.









# MINIATURE SHRUBS

## A Colorado Plant Study

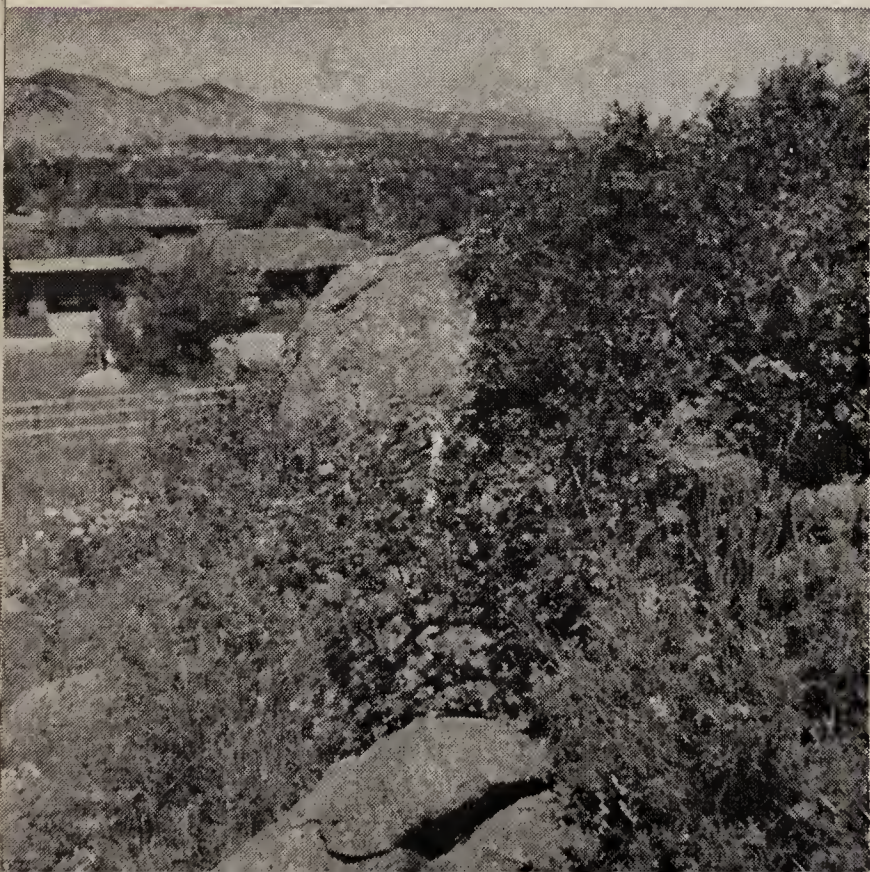
This story, written several years ago by the late Darwin M. Andrews, is here presented for the pleasure of Green Thumb readers by the kind permission of Mary Andrews.

**I**F Rock Gardening is to share its rightful place among the fine arts, and escape the fate of a mere fad, it must cherish ideals of correct design. The rendering of balance, proportion and the other harmonies, ever more exacting in the little garden than in the large one, puts a premium upon certain features that sometimes are lacking, namely, woody plants which will not too soon outgrow limitations of size and space.

The little shrub is needed in the rock garden, first, to render contrast; detail alone is irksome. Second, for variety; the substitution of shrub clumps for some of the rock masses will relieve heaviness and introduce variety. Third, and not least, we should use these little shrubs for their own intrinsic charm of leaf, twig and flower, and for their quality of harboring dainty shadows so essential to pictorial effect.

An application of relativity, easily

*A natural rock garden in Boulder.*



understood, is stated by Mrs. Wilder in the form of an axiom, that "Proportion is beauty." Thus it is, that the choice of shrubs, the use of rocks and the selection of all other plant material as well, must be consistent with the scale of the garden.

We may venture, I believe, to widen the spread between maximum and minimum sizes in the little garden. Also, I should like to see a garden plan using alpine plants and little shrubs, almost or quite without any rocks. I am sure it could be made very attractive. It would mean a greater dependence upon shrubs in the small garden than we are accustomed to see. It might admit shrubs up to a yard in height, or the scale might be much less. Likewise, the ultimate spread of a low-growing shrub may be such as to disqualify it, if it ranges unrestricted through the soil or over its surface. Mass-effect is one of the garden harmonies that must be preserved with care. Nothing short of death in the ranks upsets the peace and quiet of the garden community more than unregulated aggression.

It would be interesting to know what the limiting factors are that decree to a shrub, "Thus far and no farther." Be that as it may, the fact remains that such limits exist, that they are fairly constant, and that they may be employed to perfect the delineation of small-scale design.

Alpine and desert influences are of one accord, in that they restrain plant growth. Dwarfness from both influences is prevalent in the Rocky Mountain region. The result is a wealth of



diminutive shrubs sufficient for a wide range of utility. Among them is no lack of hardiness, there are deciduous and evergreen types, shrubs for dry places or moist. Privation has branded them so effectually that their miniature proportions are permanent.

Two injunctions are necessary, else the generous gardener would inadvertently destroy these frugal creatures of adversity. The desert plant will prefer its accustomed warmth and sunshine, and a dryness of soil maintained by drainage. Flabbiness or even death may result from too rich or too watery a diet. The alpine, too, thrives in a lean soil with thorough drainage, but resents heat and continued drought. As dwarfness results from two rather contrary causes, the blending of desert and alpine types in garden composition should be avoided. Happily, the two sources of dwarf shrubs permits a wide range of use; the more so, because small shrubs from intermediate stations in the mountains are less exacting.

Possibly the smallest American shrub is the infinitesimal willow of the bleakest, wind-swept mountain summits. Tree in name, but hardly a shrub by any standard of size, it remains true to form when established in the garden. Its most favorable location is the moist, but not wet, moraine, slightly acid, with part shade. A little attention to moisture will suffice if the moraine is not available. It continues then to produce its woody stems, mainly underground, extending its fairy rings of growth with surpassing slowness. Mats from a central root, I have seen, all connected by invisible nerves, requiring several decades, if not a century for their development. Aerial tips, covering the entire mat, put forth two or three little round leaves and a tiny catkin.

Such is the glacial willow of the Rocky Mountains, *Salix saximontana*.

The rock willow, *Salix petrophila*, shares habitat with the glacial willow, but favors the scant shelter of low rocks rather than the open places. Its garden culture is exactly the same. It does not form mats, but low tufts. Its yellow or greenish twigs are rather stout with fat little winter buds, each of which expands into several small glossy leaves, and here and there a single catkin. Its annual growth may be only a half-inch, certainly no more than an inch or two, and its ultimate height four inches.

The next willow of high merit in point of size, excepting a number of alpine species not in cultivation, is *Salix brachycarpa*, which I have called the Rollins willow, because the form I have grown for many years came from Rollins Pass. In the garden it takes several years to produce the height and spread of six inches, and one foot is practically its maximum for many situations. It is adaptable, growing well in the open border, but appreciative of moisture; and like all the other alpine willows, an acid soil. Its yellow twigs and wealth of silvery foliage are elegant enough to grace the most exclusive setting.

Among willows of larger size, none is finer than the silvery arctic willow. *Salix glaucops*. A delightful form of this is abundant over the high timberline stretches of the Rocky Mountain National Park, where it forms lovely thick mats or cushions of silvery gray-green. At lower elevations it attains three or four feet but grows slowly, and can be kept within any reasonable bounds for many years.

A tiny shrub of the arctic world and common both to the Alps and to the Rocky Mountains, is the *Dryas octopetala*. Farrer said of it, "The sovereign of all shrubs for the rock



garden with its hearty flat evergreen carpets of little oak-like leaves, snowed over in June with immense flowers \* \* \* The plant can be grown in any reasonable soil, and in any sunny place, requiring nothing but to be well planted and then left alone to get larger and wider forever." Its culture is not as easy in America as Farrer has indicated for England. My own solution is the light shade of a lath-house and the barely moist level of a moraine, with a porous substratum of disintegrated granite mixed with humus, inviting the roots to its cool, moist depths.

The Rocky Mountain wintergreen, *Gaultheria humifusa*, requires the same garden treatment. It is a wee shrub extending slowly by stolons, and forms a close emerald carpet of evergreen leaves interspersed with beads of ruby.

Flowering at the time and place where water from nearby snowbanks percolates beneath the surface, the tiny mountain laurel, *Kalmia Microphylla*, sways its silent bells of tender rose in lonesome places of the high mountains. Few have seen it, as it

is not widespread, and none to my knowledge has grown it for more than a brief period. Fall-dormant clumps brought in and placed in a bowl of water by a window will flower for Christmas, and may even produce a new set of leaves and flower buds to bloom again before spring. Suggested culture would be a wet and very acid moraine.

Below the alpine, the montanic zone contributes a few shrubs less than one foot at maturity. The bear-berry, known locally by its Indian name, Kinnikinnick, is distributed along the northern United States border, and is abundant throughout the northern Rocky Mountains. Transferred to the rockery, it trails quite extensively but rather slowly and is easily restrained. The festoons of evergreen foliage with red berries are always the acme of loveliness. The difficulty of establishing plants directly from the wild is one of the reasons why it has not become common in cultivation. It prefers a rather well-drained grit-loam in full sun.

Clematis, of the group *Atragene*, has a dainty offering of trailing habit.

*Kinnikinnick, with its waxy, pink and white bloom.*





*Atragene tenuiloba*, with large cruciform blue flowers, the leaves twiceternate, for shade and humus soil, is a mere trailer, and its slender vine pilots the great pale stars into unexpected places.

Almost unknown, even in its homeland, is the sub-alpine sage, *Artemisia arbuscula*. Belonging to a genus of many types, it is a near relative to the great sagebrush, the saving feature of the desert. This little member of the family, very low-branched and only six to ten inches in height, is found on Ten-mile Creek above Dillon, on the road to Leadville. It is extremely hardy, dependably evergreen, and easily established in a humus soil with drainage. The green of its foliage is burnished with silver and its herbage has a pungent aroma which is rather pleasant.

In open mountain woods, in a rich humus soil, luxuriant where snow lies all winter, grows the mountain myrtle, *Pachystima Myrsinites*. It is an evergreen of the bitter-sweet family, about eight to ten inches in height, and the sprays of small dark green leaves make an undergrowth and sometimes a carpet of exquisite texture. A plant for the rather careful grower, it is benefitted by a light mulch of boughs or excelsior over winter.

Oregon grape is the general name given to several species of *Mahonia* of the western states. Strong resemblances of leaf and flower have been the source of much confusion. It remained for Professor Cockerell of the University of Colorado to distinguish the true characters which separate the Rocky Mountain shrub from the taller one of the Pacific Northwest, and restore to the former its original name, *Mahonia repens*. Besides the lower growth of the Colorado plant, it spreads consistently by underground

stolons, to which feature it owes the name *repens*, creeping.

The creeping Oregon grape is uniformly dwarf, not often exceeding six to ten inches, and thrives on sunny or shaded slopes in dry ground. Its period of activity is early spring, from the blustery days of March, through April. The yellow flower clusters are richly fragrant and are followed in summer by dark blue berries with a whitish bloom suggesting grape. The leaves by this time are mature, of thick texture, usually five-parted, the leaflets spiny-edged like holly. They are evergreen, but usually become bronzed by the sunshine of autumn and winter to tones of purple and red. A beautiful sight in a broad stretch entirely carpeted with its growth.

As an individual specimen for the rock garden, its creeping tendency forbids. It is excellent against a rock or boulder and may easily be confined to soil pockets of greater or less extent. Here is its greatest charm for the small garden. As a ground cover for sun or shade, it has possibilities hardly surpassed, and it thrives under any reasonable conditions.

The three other shrubs which retain their small size indefinitely belong

*Oregon Grape, Mahonia repens, in bloom.*





to the foothills and mesas. The small-leaved snowberry, *Symphoricarpos vaccinioides*, is preeminently the best of its group for the little garden. Not much over a foot in length, its slender branches arch gracefully, and in summer are strung with pearly berries. The rare little dwarf indigo, *Amorpha nana*, is a miniature shrub of the northern mesas. Less than a foot in dry soil, it is freely branched, with terminal spikes of garnet, and has aromatic foliage of minute leaflets. In southern Colorado is the western lead-plant which differs from the eastern lead plant, *Amorpha canescens*, in smaller size, greener foliage and the color of its showy flower spikes which are deep blue-violet. Not commercially grown, and possibly a new species. To these might be added also, *Ceanothus Fendleri*, the smallest of three native species. The white sprays of minute flowers are of filmy lightness and fragrant. It grows on dry, rocky slopes in full sun.

Characteristic of arid regions are several suffruticose plants, not entirely woody, but the perennial top leafing from year to year. One of the most attractive of these is the half-shrubby evening primrose, *Oenothera serrulata*, of the mesas. It is low-branched from a single stem and

*The native Low Ninebark (Physocarpus monogynus) in bloom.*



*Rock Spirea, (Holodiscus) in bloom.*

makes dainty clumps of less than one foot. The one-inch flowers are yellow, crumpled in the bud, and never quite lose their crinkled texture; an all-summer bloomer for a dry, sunny corner of the rockery.

The shinnery or shin-oak, *Quercus Havardii*, so called because of its knee-height, is perhaps the smallest American oak. It is not found in Colorado, but in nearby sandhills of Oklahoma. It is hardy to about ten degrees below zero, and suffers only partial top-killing when colder. As might be expected from its habitat, it requires good drainage; a sunny slope or the edge of a terrace is ideal. It commonly grows two feet tall, the foliage is bluish or glaucous, and has pleasing autumn tints. The large sweet acorns were formerly used for food by the Indians.

Of many native roses, several low-growing ones are weedy in habit. A very charming exception is the Black





Canon rose, *Rosa melina*, a neat bush of surpassing hardiness. The large single blossoms are dark rose, delightfully scented, the hips bright red, and the foliage aromatic. The growth is upright, two feet tall, from a compact crown.

Several shrubs which in time would attain three feet, are of sufficiently slow growth to permit their use in the rock garden. Four are of exceptional merit. The sub-alpine birch, *Betula glandulosa*, makes neat round clumps and grows in moist ground; it makes a satisfactory growth in dry soil, retaining its miniature effect for a longer period. The mountain-spray, *Holodiscus microphyllus*, allied to spirea, is a narrowly upright shrub with aromatic foliage, and gives a delightful bit of accent to the larger rock garden. The ample terminal sprays, at first creamy white, tinge with pink and age to light brown. Favors sun, a light soil and good drainage. The small-leaved mock-orange is like *Holodiscus* in its requirements. Long known in Europe, it is an ancestor of some of the Le-moine hybrids, to which it has imparted its graceful habit and rich fruity fragrance. Although divided



*Bush Cinquefoil in bloom.*

into several species, the original name, *Philadelphus microphyllus*, seems sufficient. The name, mockorange has been applied also to *Jamesia Americana*, a shrub of similar requirements except that it is benefited by light shade. Flowers the size and form of orange blossoms and fragrant; leaves thick and somewhat velvety.

Yuccas and cacti have some of the qualities of shrubs, but belong to the desert, and together with desert shrubs of small size not mentioned by name, will find appropriate surroundings in a specially planned desert garden.

*A blooming stem of Jamesia.*





## PIONEERING

From original notes made by D. M. Andrews several years before he died. We print them here with no editing for the valuable information that they contain. We appreciate very much the permission of Mary Andrews to publish these notes in the Green Thumb. Ed.

**B**ACK of everything is a beginning. The dream of yesterday becomes the reality of today and the tradition of tomorrow.

The Pioneer has few traditions. He may be a maker of history, but that concerns him little enough. If he has vision his townsite may eventually have a railroad. Hardship is supposed to have an affinity for pioneers, but being born and not made, they are apt to accept their lot philosophically, very much as other people do.

An interview is the accepted go-between when the need arises for relating personal experience. I hesitate to go on with this discussion, fearing it may sound like a masked confession. It used to be my preference, during my tenderfoot days as a plant collector, to pose as a prospector with a pick, rather than be mistaken for a "nut" recently escaped from the asylum. My move to Colorado was in the early nineties. A fortunate college romance resulted in my marriage some weeks later. Our inventory as a going concern consisted mainly of hopes and ambitions, a small property with a large mortgage, and not much besides; only that I had the best girl in the world, and though deeply in love at the time I have had no reason since to reverse my judgment.

I should go back of this to mention my birth in an obscure section of Southern Illinois then locally known as "Egypt." But more particularly to mention the first episode which seemed to have an important bearing upon what has followed.

As nearly as I can determine, the time was February or March following my fifth birthday. My mother

was director of my first expedition for plant exploration. We set out to the woods adjoining our farm provided with a basket and an old axe, for the ground was frozen. My mother had located Bloodroots the previous spring and to reach them she easily walked the log across the stream, but I suppose the water looked cold and fearsome to me, so I sat down astride the log and propelled myself with my hands till I could drop off on the other side. After chopping at several places, bloodroots were found and we returned, crossing the log as before. The bloodroots were planted in a window box, and very soon the pink sprouts showed life and flower buds stretched up each from a still clasping leaf. They unfolded their white petals with the morning sun and went to sleep again each night.

Being a natural interrogation mark, I was soon learning to call all the flowers in our woods by name. How my mother was able to review her botany, care for a family of five, give three youngsters their first years of schooling at home, and finally to finish fourscore years and a few more without parting from her youthful enthusiasm is past my understanding. I am sure that both my father and mother held certain misgivings at times, perhaps with good reason, because my early training had not been more conventional. I confess satisfaction in proving to them after some misgivings on my own account that such fears were groundless.

Colorado in the early nineties was a procession. The tenderfoot was everywhere in evidence. Five or ten



years residence made one an old-timer. In so short a period, if successful, one might pretty well have made his "stake" and be planning to go back to "the states". Those who could not go back stayed.

The foundations of Cripple Creek were laid about that time. The fabulous output in gold from the Independence and other mines focused the eyes of the world upon Colorado. But the wealth which the mines brought into Colorado was far greater than their output. Those worked-out mines are still paying (indirect) dividends.

The prospector in those days was of all men the least conspicuous, because you expected to find him wherever you went and you were seldom disappointed. When asked if I was prospecting it was easier to answer the affirmative than to go into explanations. And indeed I was. The livelihood of a plant collector was just that precarious. Fortunately I had sufficient skill in other directions to be able to duplicate the answer of an old Cornishman engaged with pick and shovel on a mountain road, that he was working for a little "grub-stake" so he could go prospecting next summer.

A crooked lane took a turn for the better one memorable day when I was called into consultation by a wealthy resident, also the founder of Colorado Springs, General Wm. J. Palmer. I was not used to consultations nor to the luxury of his gracious entertainment. His problem was to restore some of the original wildness and charm of Glen Eyrie, his palatial country place, joining the Garden-of-the-Gods on the north. The liberal Commission which resulted was the first substantial encouragement I had had. The inspiration of his great personality was of inestimable worth just then and has been ever since.

Other things happened. Commercial connections with a number of horticultural concerns in England and on the Continent, reflected the eagerness of Europeans to make use of the wild flowers of the Rocky Mountains in rock gardening before America had taken much interest either in rock gardening or in their own native flora. A number of Colorado flowers subsequently came back to America as novelties after receiving an award from some European Horticultural Society.

Relative to the social development of Colorado came the erection of finer homes and the shifting of residential areas. Well kept lawns, shrub and flower borders became the rule rather than the exception. Colorado had ceased to be a procession and became a commonwealth.

To meet an obvious demand, plant collecting as a principal enterprise gave way and a nursery of ornamental planting stock took its place. This is hardly the whole truth because already a number of native shrubs and flowers were being propagated and cultivated under nursery conditions. My interest in them and my assurance that they would sometime enter into their own has never grown dim. Almost immediately the cultivated natives became useful and often invaluable for local planting.

About this time it was my pleasure and fortune to meet the late Professor Chas. S. Sargent of the Arnold Arboretum. I had already supplied the Arboretum with various western shrubs. I accepted his suggestion that as a vacation undertaking I collect trees and shrubs for the Arboretum in various parts of the West whenever I could spare the time. Under this arrangement I visited southern and western Colorado, Utah, New Mexico, Texas and Oklahoma, mak-



ing various expeditions by train and automobile over a period of several years. These were strenuous vacations, but the opportunity to explore as a pastime was secondary only, it opened the door to precious material which I was able to establish for trial in the nursery.

With the advent of improved highways and efficient motor transportation my field of investigation was extended. Wherever rubber-tired wheels could fight their way I went. At one time coming unexpectedly upon a moonshiner cooking his product in a dugout back of his mountain cabin I made haste to explain that my only anxiety was to reach a point further on before nightfall. He grudgingly replied, "Well, I don't see how you got this far, I didn't suppose an automobile could do it, but I don't think you will find any worse going than you have been over. Just go across the field there and down the hill and you will find the road." Sure enough, I

did not find the road till I got down the hill.

When rock gardening came to America it was no half-way matter. The late Mons. Henry Correvon came over and told with beautiful pictures how it was done in Switzerland. The late Mrs. L. B. Wilder and Mr. Herbert Durand have given us a wealth of personal experience based upon American conditions. Dr. H. W. Gleason in agreement with Mrs. Wilder and Mr. Durand has strongly advocated native mountain flowers for American rock gardens. Mr. Stephen H. has cultivated at the Cambridge Botanical Garden most of the western flowers that have been available. Many others have talked, written about and put into practice the best modern principles. No discussion of this sort should fail to mention Dr. Edgar T. Wherry whose work with soils has made possible a technique in rock gardening never before attempted.

## A REPLY TO QUERCUS

Dear Mr. Quercus (Queer-Cuss),

**W**ELCOME home. I can imagine how nice it is to be back in Denver after your sojourn into the country of Kew where you viewed a yew for nearly eight years. Apparently your view of a yew for so long a time has taken its toll and left you a crazy mixed-up kid, entirely oblivious to what has transpired with nurserymen (N) and landscape architects (LA).

I am a N and not reticent to sign my true name. Now that the Green Thumb is being used to air our opinions and advice to green-thumbers, gardeners, and other interested parties a-la Jane Sterling and Molly Mayfield style, let me give you the story of the N.

In the open letter from Mr. Andrew S. de Huddleman (LA) to Mr. Ken Fergumore(N) which you referred to Mr. Quercus(C?) (I use the letter C for critic followed by the question mark which means that I use it advisedly), I found that some of the points presented were very, very good and how well we know that some of the plant materials listed are good and perfectly hardy here. One question C(?): If the N handled said material that is little known to general buying public, would the LA guarantee a market for it? Also C(?) if some of the borderline plant materials could be stocked by the N, would the LA make good its guarantee when it dies as a result of improper planting and care by the



not-so-green thumb buying public. Any N will verify the fact that even the most hardy nursery stock (referred to by you as pfitzers and cute little spruces) sometime reach alarming numbers on their replacement lists.

Also Mr. C(?), do you know that during your eight years of viewing a yew, Denver has been taken and taken good by fraudulent and near-fraudulent nursery outlets who operate out of your yew country, and offer everything from blue roses to night blooming jasmine? They have taken hundreds of thousands of dollars, mostly from the new home-owners, in the entire Colorado area. If you want to buy new and different varieties of plant materials C(?), simply contact some of the mail order outfits that are covering the area and consult the beautiful catalogs (in color, yet) which they will show you. Maybe the LA's would be interested in this lead. The stuff is certainly different. It would be funny if it weren't for the fact that the vast majority of "suckers" in these operations are folks living in the new housing areas with G.I. and F.H.A. loans up to their ears. Not very pretty is it C(?)?

On the other hand, the N who belongs to the American Association of Nurserymen and Colorado Nurserymen's Association has a code of ethics to live up to in handling nursery stock that he knows to be hardy if planted by unskilled hands. The N's biggest business is done with these people. The LA can always feel free to notify the N of any stock he will need if it is not in general use in the nurseries. It can always be ordered if it is on the American market.

Even if the sole ambition of the LA is to create beauty, hang the profit (ha! ha!) and the N is doing noth-

ing but going after the dollar (we wish), I am sure that a better relationship can be reached between the LA and N, even without the medium of critics (I still use the term loosely) like you, Mr. Quercus.

Maybe there is a need of a nursery in Denver that handles exclusively the little known or rare varieties of nursery stock. Maybe it would be a good project for you to start Mr. Quercus, (C?). I wouldn't be interested in it myself, however, because I got the habit of eating at a very tender age, and doubt very much if I could give it up.

KEN WILMORE(N)

## Quercus Speaks Again

George W. Kelly, Esq.

1355 Bannock Street

Denver, Colorado.

Dear Mr. Kelly:

The landscape architects that were taken apart by the nurserymen obviously are a timid, jelly-backed group, who didn't even fight back when they were in the right. I was sorry I came to their defense after reading their feckless floundering in the last *Green Thumb*. It is too bad that the nurserymen's anonymous letter could not have tied into my old opponent, John Stockbridge. There was a man of spirit even if of limited knowledge and mundane interests. You will remember that he thought that Vermiculite was an insect powder and that the Diet of Worms was a new food for lovebirds. Nevertheless, he did make good compost and I miss his pungent patter—and self.

QUERCUS

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# SUMMER

Compiled by JAMES B. STEWART  
DRAWINGS BY PAULINE ROBERTS STEELE

## ANCIENT ADVICE

Steep thyself in a bowl of summertime. Virgil (70-19 B.C.)

## SING CUCCU!

Summer is icumen in,  
Lhude sing cuccu!  
Groweth sed, and bloweth med,  
And springth the wude no—  
Sing cuccu!

—Attr. to John of Dunstable



## GO DOWN TO KEW

Go down to Kew in lilac-time  
In lilac-time, in lilac-time;  
Go down to Kew in lilac-time  
(it isn't far from London).  
And you shall wander hand in hand  
with love in summer's wonderland;  
Go down to Kew in lilac-time  
(it isn't far from London).

Alfred Noyes—The Barrel Organ

## BED IN SUMMER

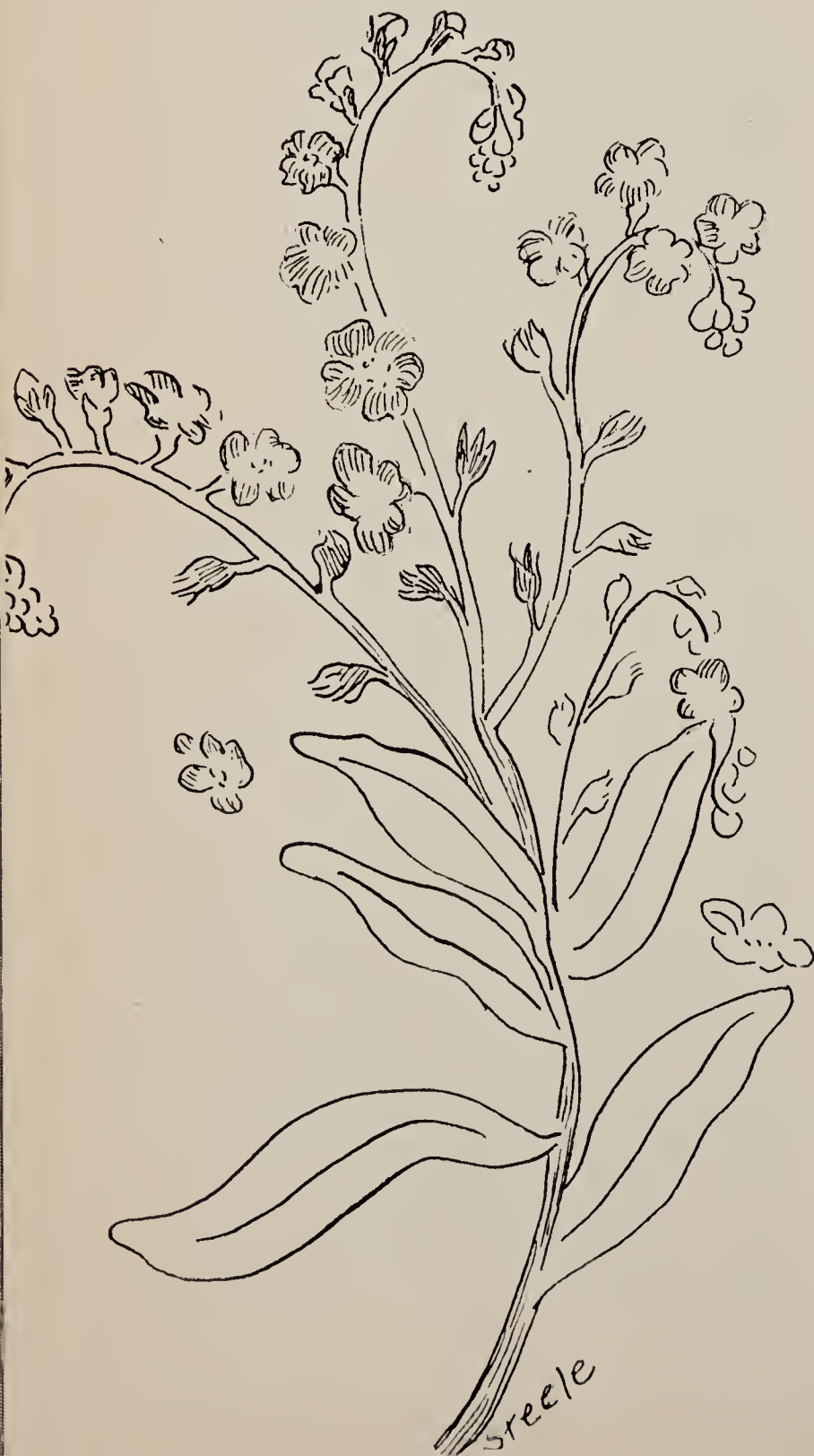
In winter I get up at night  
And dress by yellow candle-light.  
In summer, quite the other way,  
I have to go to bed by day.

—Robert Louis Stevenson

## QUEEN OF SECRECY

Blue! Gentle cousin of the forest-green,  
Married to green in all the sweetest flowers,—  
Forget-me-not,—the blue bell—  
and, that Queen  
Of Secrecy, the violet.

John Keats—Sonnet





## HER DIARY

"A milkweed, and a buttercup, and  
cowslip,"

said sweet Mary,

"Are growing in my garden-plot, and  
this I call my diary."

Peter Newell

## SUMMER'S CHILDREN

Pale in her fading bowers the Sum-  
mer stands,

Like a new Niobe with clasped hands,  
Silent above the flowers, her children  
lost,

Slain by the arows of the early frost.

Richard Henry Stoddard—Ode

## REMEMBER THIS ONE?

In the good old summer time,

In the good old summer time,

Strolling thro' the shady lanes

With your baby mine,

You hold her hand

And she holds yours,

And that's a very good sign—

That she's your toot-say woot-sey

In the good old summer time.

Words by Ren Shields, music by  
George Evans—1902.

## FORGET THEM? NEVER!

You cannot forget if you would  
those golden kisses all over the cheeks  
of the meadow, queerly called *dande-*  
*lions*.

Henry Ward Beecher — A Dis-  
course of flowers.

## DAISIES IN OUR TOUN

Of all the flowers in the mede,  
Than love I most these floures white  
and rede,

Soch that men callen daisies in our  
toun.

Chaucer (1340-1400)



## COOL AS A CUCUMBER?

He had been eight years upon a  
project for extracting sunbeams out  
of cucumbers, which were to be put  
in phials hermetically sealed, and let  
out to warm the air in raw, inclement  
summers.

Swift—Gulliver's Travels.  
(Voyage to Laputa)





## BOOK REVIEW

By M. WALTER PESMAN

*Wild Flowers of America*—Crown Publishers, Inc., New York \$10.00  
By Rickett-Walcott-Platt as originally published by the Smithsonian Institution.

After having lived in the Rocky Mountain Region for a great many years and having noticed how different our wildflowers are from the "general run,"—one does not get too excited about a new book on North American Wildflowers. "Just another collection of indifferent pictures, fitting New England, or even Illinois, but having little in common with our native flora". That is apt to be our opinion, either expressed or withheld.

But this ten-dollar volume is in a class by itself. You are buying an art gallery of exquisite paintings, four hundred of them. Each one is worth framing. There is a good reason for this.

The original paintings were done by Mrs. Mary Vaux Walcott, wife of the Director of the Smithsonian Institution; she did them directly from nature, often under difficult conditions. The first copies were made from copper engravings, each sketch being printed individually in four colors. Even the paper was treated so as to look like the original water-color sketch. The Smithsonian Institution published five hundred sets of these 400 sketches in deluxe portfolios to sell at Five Hundred Dollars each. Another two thousand sets were put up in smaller-size portfolios at One Hundred Dollars each. By that time \$750,000—had been spent on the job!

With the modern miracle of reproduction we are now able to enjoy these masterpieces at a cost of ten dollars. Short descriptions of each flower are placed in front of the book, ar-

anged according to plant families.

The nice part is that one third of the pictures (by actual count of the first two hundred pictures) do illustrate natives of our region or, at least, are so much like them that recognition is easy. You see, our unusual plants have a fascination for people all over the United States, so were sought out by the artist.

So, all in all, by buying this *Wild Flowers of America*, you acquire a beautiful book for your library table, as well as a valuable addition to your reference books on our native flora. (But if you don't have Roberts' COLORADO WILD FLOWERS, also in color, be sure to buy that at the same time).

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*Does this picture appeal to you as a hunter or a Nature Lover? Do you want to kill or protect? Photo by Dr. Cuthbert Powell, Submitted by James Stewart.*



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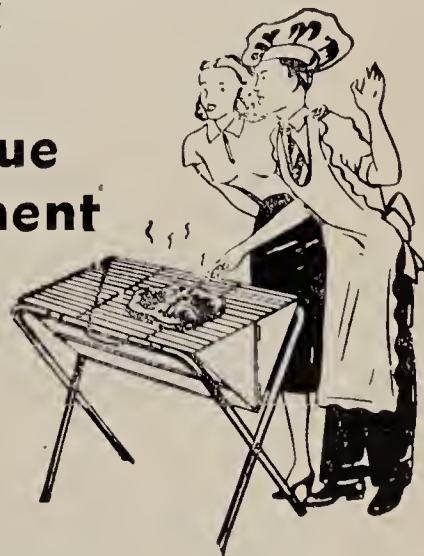
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## THE DUST BOWL

By H. N. WHEELER

Periodic droughts have plagued the plains states as many years back as the oldest inhabitants can recall. When the buffalo and gramma grasses, and shrubs here and there covered the ground, no matter how severe the drought or the velocity of the wind the soil did not blow away. Forage was damaged by overgrazing, and by prairie fires but the grass roots held the soil firm.

It was discovered that wheat could be grown, some years, on these semi-arid lands. The government bought, and is still buying, surplus grain at twice what it costs to produce. This is an incentive to plow up more and more sod regardless of whether the land is light or heavy. Soil Conservation methods have helped to lessen the blowing of the lighter earth in ordinary years and to some extent in the very dry periods.

Proper handling of the land is not just a local matter, confined to southeastern Colorado and adjoining areas. The dust bowl of the thirties was 96,000,000 acres; population of the states concerned lost thousands of citizens who moved to other states. Farm lands by the millions of acres became the property of the mortgage holders. But these losses are not the real tragedy.

This is only the beginning, for with repeated drought and wrong handling of the land, the dust bowl will spread farther north, south and east until it becomes a desert larger than the Sahara Desert, which too was largely man made. The dust in the thirties drought was blown as far as Washington, D. C. and 300 miles out into the Atlantic Ocean. A billion and one half tons of soil have already landed on the farms of Iowa from this dust period. It can be

readily seen that the effects of this mishandling of land are far reaching and most harmful.

Remedial action must be taken at once, not five or ten years hence, if a national calamity is to be avoided. Every forty acres must be carefully studied, and land too light to stand plowing must be put back into grass and NEVER cultivated again. If private owners will not take necessary action then the U. S. Government or the states must. When the welfare of the whole nation is at stake wrong practices in use of land cannot be tolerated no matter who holds the title.



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COLORADO'S GARDEN MAGAZINE



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Vol. 11

AUGUST, 1954

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### ROSE SOCIETY NEWS

Remember the place and date. The Appeldorn's—August 12. Pictures of Denver Gardens by Dr. Bouslog. Pie supper follows. Proceeds for the Rose Society.

Our spring show was outstanding. A total of 844 entries. 602 Hybrid teas; 138 Floribundas; and 104 arrangements. Six entries by children under twelve.

Albera sweepstake trophy and seven cups were awarded as follows:

BEST Hybrid Tea—W. D. Minyard—Peace

2nd Best HT—Lloyd Woodward—Mirandy

3rd Best HT—A. E. Albera—Mme. Chiang Kai Shek

Best Group of Three—Mrs. E. C. Horne—Eclipse

2nd Best group of Three—Clyde Learned—Diamond Jubilee

Best Floribunda—Elwyn Kiplinger—Ma Perkins

Best Arrangement—Vesta Turnure—First Love

Sweepstakes — 44 points — Clyde Learned.

Judges were for HT classes: Mrs. S. A. Steier, Salt Lake; Miss Bancroft, Salt Lake; and E. O. Nord, Denver.

Arrangements: Mrs. W. T. Eccles, Denver and Mrs. Ralph Lewin, Denver.

Seen observing our Rosarium during the Men's Garden Convention—Dr. Milton Carleton, Ray Hillman, Memphis; Floyd Studer, Amarillo Rose Society and many others.

Roses to you — All those who helped to make our show successful; especially those taking part in the television program Saturday before the show. To the members of Crestmoor Garden Club for labeling our markers. To you, George and Sue for placing them in the garden.

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THIS LAWN ISSUE

Has been assembled from many sources for your benefit. In addition to the regular editorial work many have contributed of their knowledge and experience.  
Mr. Herbert Gundell, Denver County Agent, has helped assemble and edit many of the stories. Mr. Robert Schery of the O. M. Scott Co.

in Marysville, Ohio has furnished several fine stories and pictures.  
The Denver Toro Company has furnished pictures of lawn machinery to use as illustrations.  
We thank every one who has written a story or contributed to the completeness of this issue in any way. We hope that it will be of benefit to many homeowners for years to come.

*Picture on front cover of the John Gates garden. Photo by Earl Davis.  
Drawing on back cover by Claude Hansen.*

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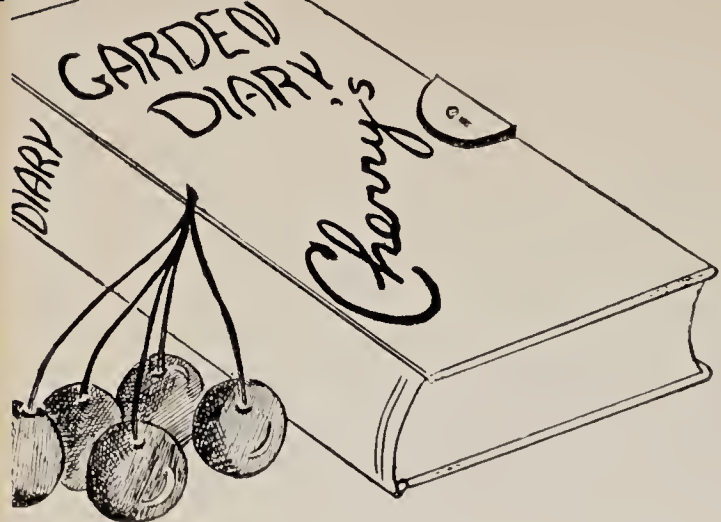
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## CHERRY DOES SOMETHING ABOUT THE AUGUST SLUMP

SUNDAY, August 1. This day started out hot and quiet. I could not sleep late and got up to look over the garden while Red stayed in bed and tried to make up for all the sleep lost while we have been invited out evenings lately. I sure like to go out and eat and visit with congenial friends, but when it happens four evenings in succession and we can not get to bed until late, I think that it is too much. I guess that I'll have to ration my social activities as well as my money.

The garden has been full of color all spring and summer, so far, with the seasonal splurges of Tulips, Iris, Lilies and Peonies; but now it begins to look rather bare. There are just a few Shasta Daisies, some Coreopsis, a few Glads and a clump of Perennial Phlox in bloom. Everything is rather well watered and weeded so I'm just going to drive around town a little and see if everyone's garden is as colorless as mine.

Sunday evening. What a trip I had today, and what a notebook full of ideas I accumulated. Most of the gardens that I passed were as barren as mine, or worse, but every few blocks I would see something new that was in bloom. I have a list of at least 20 flowers that I found in bloom. I'm going to plant as many as possible of these in my own garden next year. I do not believe that it is necessary to always have this big "August Slump" in the garden. I noticed that the perennial Phlox filled an important place and that all the good gardens filled in the odd corners with the heat-loving annuals like Marigolds, Zinnias and Petunias.

Saturday, Aug. 7. Last week was so hot that about all the garden work I had any ambition to do was to soak the shrub borders and water the lawn. As I looked around this morning I saw a lot of little things that needed doing. Dad Dendron came by and told me that I had better clean up all the weeds that were growing around now to prevent them from seeding themselves all over the place. He also found some aphids on several plants and scale starting on the lilacs and Cotoneaster. I can spray the aphids but I guess that there is little I can do now to control the scale insects but to wait until the plants are dormant.

Dad Dendron noticed that some plants set out this spring were growing well and that some were not. He took me indoors and made me think how each plant was planted and where I got it. It was remarkable how most of the "bargain" plants that I got from the transient dealers and those that I sent off for were not growing as they should while the shrubs that I went to the nursery to get were dug and transplanted promptly were all growing vigorously. Dad claims that most plants will deteriorate about 1% for every minute that they have their roots exposed to the sun and air at the time of transplanting. He claims that the only "cheap" plant worth buying is one in a small size. These do come cheaper, transplant better and will soon grow into good, large, specimen plants.

Sunday, Aug. 8. All I had the ambition to do today was trim, but that



did make the garden look much better. There were some dead twigs in the Spirea bushes, some overly large stems in the lilacs to take out and the Russian Olive and volunteer Chinese Elm to restrain. It is really fun to trim. Just a few clips will make an old, ragged shrub look neat and cared for. Hedges, I find need frequent trimming so that they can become dense and uniform.

Sat., Aug. 14. Dad Dendron came by the place early in the morning and looked things over thoroughly. He recommended that I transplant the Oriental Poppies as they are now dormant and will start into growth a little later. The Grape Hyacinths have been in long enough that they would benefit by a resetting and division, he said. My tulips did well this year and were just where I wanted them, but he said that now was the time to move them if they were in the wrong place or "running out".

About 2 P.M. Red came home and got busy fussing around the roses, I entered a rose in his name at the last rose show, and as luck would have it, it won a big prize. Now he is all hepped up about roses and wants to be always watering, fertilizing or spraying them. I guess that it was a good trick to get him interested in the garden. I hear that there is to be a new Men's Garden Club organized in the neighborhood, so I'm going to hint around that he join so he can brag to the other men how his rose won a prize.

I discovered yesterday that Red had gotten so enthusiastic about the roses that he had piled on about four inches of fresh manure around their stems. When I saw it, the manure had begun to heat and had almost killed several plants. Dad Dendron says that the real indication of a Green Thumb is when a gardener knows when to do a thing and when to stop. He says that if a little water or fertilizer is good for a plant, a lot is not always better.

Sunday, Aug. 15. We were lazy today and got up late. About 10 o'clock Mother called and asked us to go with her to see one of the new exhibits at the Museum that Bob Niedrach and his helpers had just finished. She was quite excited about how the foreground of artificial flowers blended into the painted background, and Dad raved about how the whole scene was ecologically correct. I pretended that I knew what ecology meant, but looked it up as soon as I got home and found that it referred to a group of plants, animals, birds or insects that naturally lived together and liked the same climatic conditions and probably were more or less dependent on each other for their existence.

We ate our lunch out under some shady trees south of the museum and then wandered around a little to work down the excessive fried chicken and potato salad. We discovered that a lot of evergreen trees had been planted on newly made hills, and then later found thousands of roses in bloom west of the Museum. We picked out three new roses that we must have. There were also beds of ferns, and a group of Crabapples and a lilac lane. I hope that the Botanic Garden will be able to plant more groups of things that I want to know about like ground covers, plants for shady places and small scale trees.

Sat., Aug. 21. It has been hot most of the week, but we had a little rain yesterday and it was quite cool for a while. I read a story by Herb Gundell that said something about getting the soil ready now for fall lawn seeding in September. He claimed that about half the work of planting a



new lawn should be put on preparing the soil before any seed was planted. I finally got Red to spade up that little area that we left last spring and work manure into it. I am going to try the new Merion Blue Grass. Some claim that it is even better than the Kentucky Blue. Dad Dendron came by and encouraged Red to stick to his spading. He claims that if Blue Grass is planted in good soil, such that a farmer would expect to grow profitable crops in that it will take little additional fertilizer, that there will be few weeds and that it will take less watering.

Sun., Aug. 22. I got up early again and looked leisurely around the garden. Seems like I get more fun out of these early Sunday morning tours than any other part of gardening. When I know that I don't HAVE to get up at any particular time it is quite an adventure to get up early and prow around when it is so quiet and no one even driving by.

I could surely notice a decided improvement in the growth and color of the plants that I mulched heavily several weeks ago. The ground was moist and soft under the mulch while adjoining areas were hard baked.

I noticed that several shrubs were not growing as fast as I thought they should so I phoned Dad Dendron to ask for his recommendation as to the kind of fertilizer to use. He gave me the whole story and showed the advantages of both the organic and inorganic fertilizers. He claimed that it was not good for the tree or shrubs to fertilize much later than this, because it was the natural time for woody plants to ripen up ready for the severe winter to come.

Sat., Aug. 28. Everything looks dry (on the surface) but I have dug in several places and found that the ground underneath was moist enough. Now that we cannot water every day we water a part of the yard only on each watering day, but we really soak it. I believe that the garden looks better than it ever did.

I'm going to be lazy this week end and enjoy the fine weather. I have finally talked Red into getting sleeping bags and we are going to try them out by going up into the hills and turn off on one of those obscure roads and camp until Sunday afternoon. It will be fun and Mother is coming up in the morning to see if she can discover some new wildflowers.

Sun., Aug. 29. Last night was quite an experiment. The forest was so dry that we could not build a fire. We got by with canned food, but Red couldn't sleep without his coffee (Yampa River water I call it). The air mattresses leaked so we were down on the rocks by morning, and the mosquitoes enjoyed us a lot even though we did not enjoy them.

I saw a lot of things both in the hills and in gardens along the way that gave me ideas for my own garden. I let Red drive and started my garden notebook with ideas to carry out later. I thought that now, would be a good time to plan for better things next year, while the successes and failures of this year were fresh in mind.

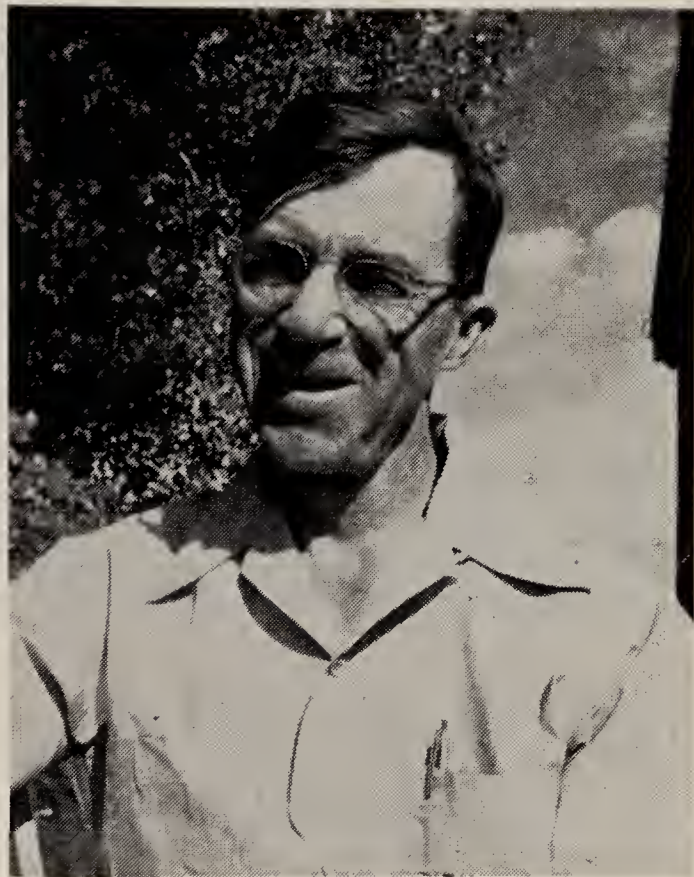
Mother Dendron told us about the Look and Learn Garden tour that is to be conducted Thursday, September 2. She says that we will get a lot of good ideas for improving our garden from these gardens on the tour. I'm going to do it. Mother says that it takes three main things to make a good garden—good design or planning, good plants or other material and good maintenance. I am going to watch all those things and see if I cannot have a garden that can be really lived in and supply comfort and beauty.



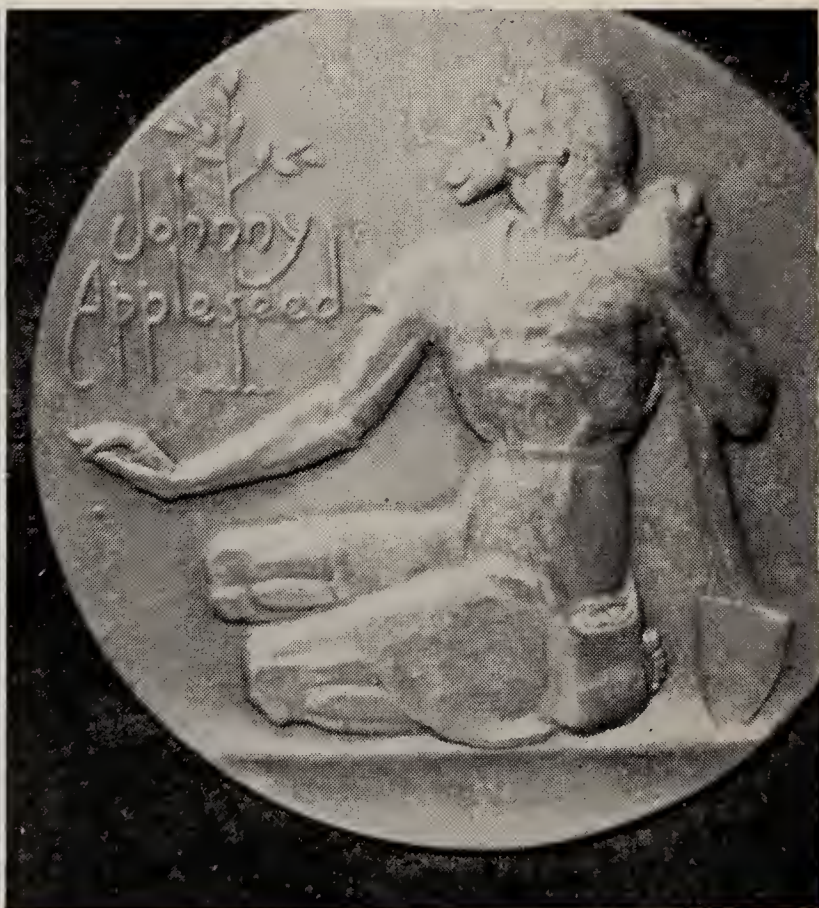
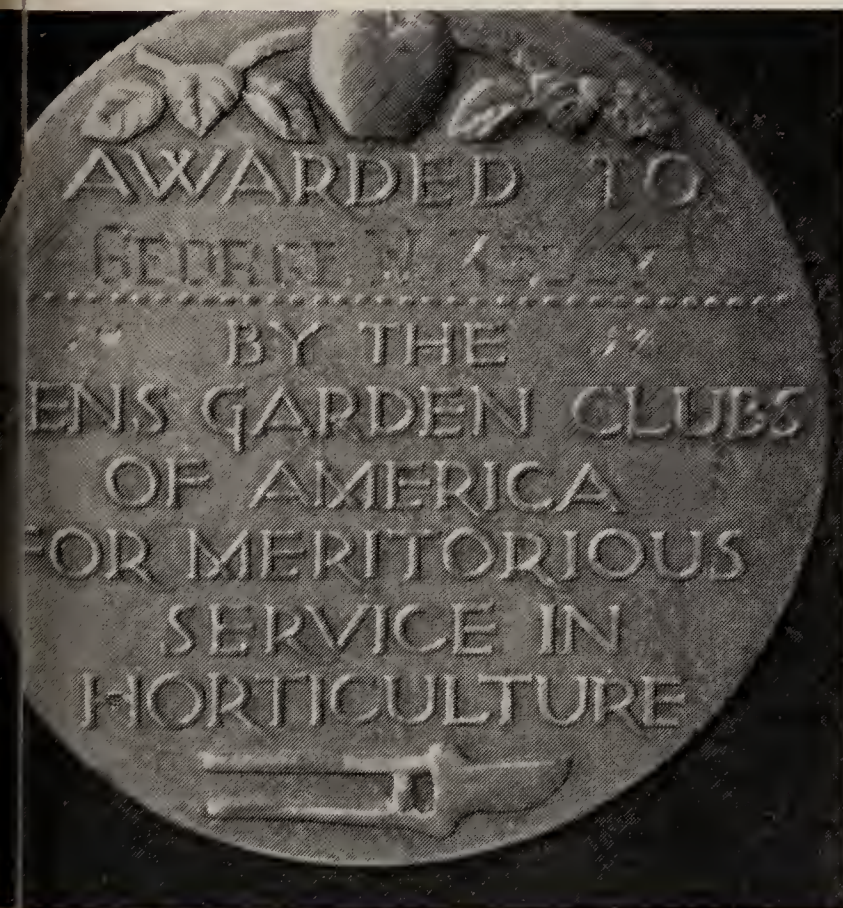
## HAVE YOU MET JOHNNY APPLESEED LATELY?

**J**UNE 11, 1954 was one of the great days for horticulture in the Rocky Mountain Empire, a day long to be remembered by all who know our one and only backbone of horticulture in this area, George W. Kelly.

It was at the final banquet of the Men's Garden Club of America Convention in Denver that the great honor, the Johnny Appleseed Award, was bestowed on George W. Kelly, horticulturist and nature lover extraordinary. All the members of the Association and his thousands of friends congratulate him on this great honor, for June 11th was the day when Rocky Mountain Horticulture came of age. George was recognized not only for his incomparable contributions to horticulture in this area but for his zealous, continuous, uphill pull to make horticulture and forestry to the masses in this area what it is today.



*George W. (Appleseed Johnny) Kelly*







## THE MOST IMPORTANT FIFTY PERCENT

Preparation of the soil **BEFORE** seeding a Lawn

By GEORGE W. KELLY

**W**HY does the bluegrass grow better in the perennial border than in the lawn area adjoining it? Partly, of course, because it is not mowed, and so is able to produce more food through the action of the sun on its green leaves, and this makes a more vigorous root system and top. This is not always the whole reason, for we will usually find that a gardener will not expect his perennials to thrive unless he works up the soil deeply and adds humus or other fertilizers. So often, little or no advance soil preparation is given the lawn areas and so naturally the grass grows better when it gets over in the areas where it is not supposed to be.

If we would keep up our reputation for having the best lawns in the world we must learn to put more time and money into preparing the soil for lawns *before* planting. The best fertilizers in the world added to the surface *after* planting can not take

the place of the humus that should have been put into the soil *before* planting. At least 50% of the budget for a new lawn should be used in preparing the soil before planting. This will pay big dividends later, for a lawn put in without preparation of the soil will often cost more in the first three years for reseeding, fertilizing and weeding than the extra amount for putting it in right in the first place.

Soils vary in texture and quality, so no general rules can be made, but it is certain that **ANY** soil will be benefitted by deep loosening and a thorough mixture of humus with it. Humus added to a light, sandy soil will enable it to hold more water and plant food and humus added to a heavy, clay soil will break it up and allow better drainage and allow the plant roots to penetrate it better. Adding sand to a clay soil or clay to a sandy soil can sometimes be done if



a great enough proportion is used and if it is **THOROUGHLY** mixed to a sufficient depth. The same amount of time and money for adding humus will usually do more good.

Humus or organic matter may be manure (cow, horse or sheep) it may be peatmoss, leaf mould or it may be composted plant material. Fresh manure has also more chemical value while peatmoss has little or none. Peat may profitably be added to most soils up to 35% while fresh manure must be used cautiously to avoid burning the new roots of plants.

The first procedure in preparing to put in a new lawn should be to thoroughly prospect the area to see what kind of soil (or other materials) is there. Dig a hole at least a foot deep every ten feet and if very poor subsoil or rubbish from the building operations is found it is most profitable to entirely remove this and refill with good top soil. Just a weak soil, if it does not contain too much lime or gypsum, may often be so improved by the addition of organic material that good lawns can be grown.

After the poor soil has been replaced and the ground has been rough graded it would be an ideal arrangement to spread about a two to three inch layer of rough manure and then thoroughly till it in. Then, turn this all under about 8 inches, spread on another inch of well rotted manure or peat and manure and till this in. This would give a seed bed 8 inches deep thoroughly loosened and full of plant food. A lawn should grow in this kind of soil with a minimum of additional fertilizing, a minimum of weed trouble and it should be much easier to keep watered. If lawns were planted in the kind of soil that a market gardener would expect to grow good vegetables in, most of the troubles would be over before they begin. Conditions then would be so favorable

for the growth of grass that there would be little room for weeds.

The above are **IDEAL** preparations of soil for a lawn. It may not always be possible to do this, but any work put on loosening up the soil and adding organic matter will be well worth while. Rototilling does thoroughly mix added matter to a soil, but often one is mistaken as to the depth that it cultivates. Small areas may still be worked up with a spade.

There is some little questioning recently as to the actual value of the new soil conditioners. Unfortunately much misleading information was given out when these were first introduced. These soil conditioners are designed to do one thing—keep a heavy soil from becoming hard, **WHEN IT IS THOROUGHLY MIXED WITH THIS AT A TIME WHEN THE SOIL IS ALREADY IN RATHER GOOD CONDITION.** Application of these materials to the surface of hard soils, or to large lumps, or to already sandy soils are not effective. People generally do want simple remedies for their difficulties and this sounds like one, but many good gardeners feel that the application of organic matter to a heavy soil will do all that the soil conditioners will do, at possibly a lower cost and with the addition of many intangible benefits that tend to encourage the important soil micro-organisms.

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## WHAT KIND OF LAWN GRASS?

By HERB GUNDELL

WHAT kind of lawn grass seed should we buy? is a question frequently asked by confused owners of the many new homes in towns and cities of Colorado. We hear much about many different types of turf grasses, of mixtures and "blends". Not a single lawn grass will perform all duties equally well. However, some kinds will assure more dependable performance under average conditions than many others. Therefore a short description of some of the more frequently mentioned lawn grass varieties pointing out their advantages and major uses should prove quite helpful. Realizing also that many lawn grass seed varieties are in short supply this year and quite expensive, I will add rates of application which have proven widely satisfactory in the Denver area.

*Kentucky Bluegrass.* I mention it first because it is without a doubt the most naturally adapted and widely successful lawn grass in this area. It is practically disease free in our dry climate and performs very reliably if thoroughly soaked once-a-week and mowed at a  $1\frac{3}{4}$  to  $2\frac{1}{4}$  inch cut. It can stand enormous abuse after it has become well established and has been known to exist for long periods with minimum water and fertilizer applications, partly due to its deep root system. Although Kentucky Bluegrass seed costs twice the normal price this year due to small supply and heavy buying demands, it is still difficult to place it second to any other type of turf grass. Application rate is about 2-4 lbs. per 1000 square feet of lawn area. Kentucky Bluegrass germinates slowly and requires from 15-28 days depending on prevailing soil and air temperatures.

*Merion Bluegrass.* This is a newly introduced strain of Kentucky Blue-

grass. It is said to be more disease and drought resistant than Kentucky Bluegrass. Commercial availability of this seed is as yet very limited and the retail market price is quite high. Rate of seed application is 2-4 lbs. per 1000 square feet of lawn area.

*Redtop.* This fine-bladed grass germinates much sooner than Kentucky Bluegrass and is often used as a nurse crop with Kentucky Bluegrass. Although it is a perennial grass it will disappear in two to three years as Kentucky Bluegrass becomes more firmly established.

*Astoria and Colonial Bentgrass.* These two grasses are very closely related. They do not creep extensively and have a somewhat different color than Kentucky Bluegrass. They are highly valued for golf tees and putting greens on golf courses where they can be given close attention and professional care. These grasses respond well to close mowing, frequent watering and fertilization. They are, however, subject to several diseases of which Brown Patch is the most common. If used for home lawns the recommended rate of seeding is 3-4 lbs. per 1000 square feet of garden area.

*Seaside Bentgrass.* This bentgrass has a more creeping habit of growth than the above mentioned two varieties. It requires similar care and is subject to the same diseases as Colonial and Astoria Bentgrass. Rate of seeding is also similar.

*Common Ryegrass.* This rather coarse, annual grass is often added to reduce cost of grass seed mixtures. It germinates from 3 to 7 days and makes a quick ground cover. It is not desirable for the establishment of better lawns because it is a bunchy grass that leaves large voids in a second year lawn. Suggested application rate of 8-10 lbs. per 1000 square feet al-



though it is seldom used in a pure stand.

*Perennial Ryegrass.* This grass variety is not considered generally desirable for lawns. The toughness of its leaves make it hard to mow. It does not make a good turf during the summer months and is therefore not recommended.

*Bermuda Grass.* Common Bermuda Grass is widely grown as a lawn grass in the South-Eastern United States. It is however not considered sufficiently hardy in this area. Some newly introduced strains of this grass are said to be more hardy. Such opinions cannot be supported until further tests and studies are made under regional conditions.

*Chewings Fescue.* This fine-bladed perennial grass is particularly well adapted as a mixture with Kentucky Bluegrass in shady places. A newly selected strain named Ilahee Fescue should also be well adapted for similar purposes. Seed application is 3-4 lbs. per 1000 square feet.

*Creeping Red Fescue.* This fine-bladed fescue differs from Chewings mainly by its creeping habit. It finds application in better lawn mixtures and shady places. Seeding rate is similar to Chewings Fescue.

*Kentucky 31 Fescue.* This very tall, coarse fescue grass is *not* recommended for lawns. It is strictly a pasture grass and finds wide adaptation as such. It has been noted as a constituent of cheap lawn mixtures sold through outlets other than the regular seed trade. Home owners are warned to beware of lawn grass mixtures where only "Kentucky 31" is given and the word "Fescue" has been purposely omitted.

*White Dutch Clover.* This rather dwarf, medium green clover makes an excellent nurse crop for Kentucky Bluegrass. It will shade the young bluegrass and fix small amounts of nitrogen in the soil which are readily

absorbed by the roots of the bluegrass. Its fibrous root system also tends to replenish the supply of organic matter in the soil. After a year or two it generally gives way to sod forming Kentucky Bluegrass plants. Recommended rate of seeding is  $\frac{1}{4}$  pound of seed broadcast per 1000 square feet of lawn area.

*Crested Wheatgrass* (Fairway Strain). This is one of the shorter wheatgrasses that finds ready application on suburban acreages where limited water supply prevents irrigation. Crested Wheatgrass is highly drought resistant and makes a good ground cover to prevent soil from erosion and blowing.

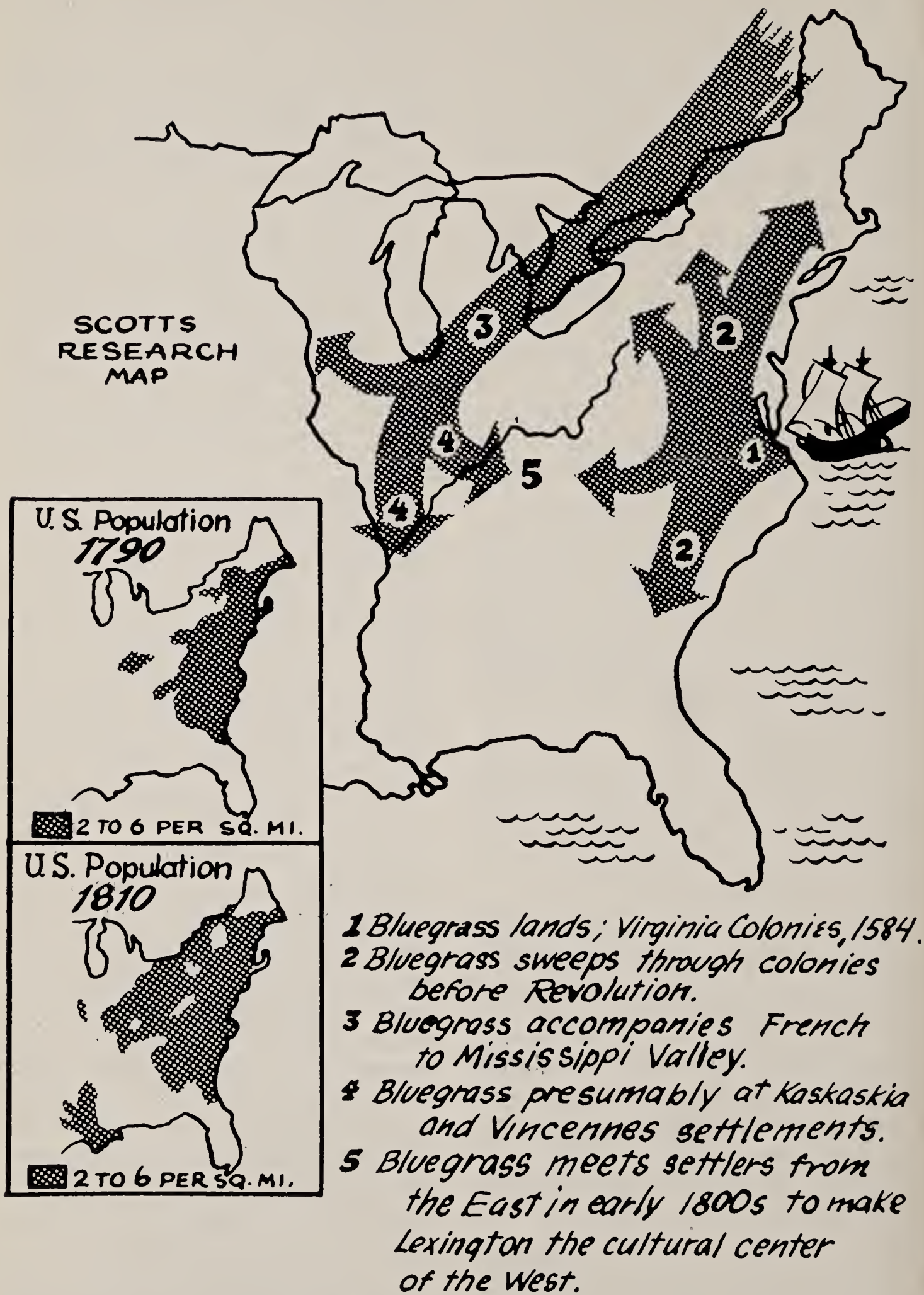
Kentucky Bluegrass seed is in very short supply this year and probably will remain so for at least another year. As local seed houses exhaust their present supply the public can accept some good lawn grass mixtures instead. Acceptable lawn grass mixtures or "blends" should contain no less than 50 to 60% of Kentucky Bluegrass, 15 to 20% of Redtop, 10 to 15% of Chewings Fescue and 5% of White Dutch Clover. Mixtures containing large amounts of common and perennial ryegrass may be slightly less expensive by the pound, but increased rate of seeding generally eliminates such savings. A good lifetime lawn is a permanent improvement of the home grounds. It would be false economy to accept inferior substitutes to minimize expense. When it comes to the selection of lawn grass seed the best is usually the cheapest especially when the expense is applied over a long period of years.

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## ANNUAL PICNIC

The date of our annual picnic has been set tentatively for September 9 at the Botanical Garden. Details later.





Drawing loaned by the O. M. Scott and Sons Co.



# KENTUCKY BLUEGRASS—PIONEER EXTRAORDINARY

By ROBERT W. SCHERY  
Of O. M. Scott and Sons, Co.

**H**ISTORY and science seem to concur that Kentucky bluegrass is native to northern Europe and cooler parts of Asia. Today it grows rampant over temperate North America, and its empire includes Mexico, South Africa, Australia, and many far-flung lands. It was scientifically named *Poa pratensis* (*Poa* "of the meadow"), in Sweden, but even the Greeks had a word for it—the "pua" of Eubulus or the "poa" of later Greeks. This *Poa* of the meadow was familiar in the pastures of northern Europe long before discovery of the New World.

How did *Poa pratensis*, lawn-grass-to-be, get to the New World—to spread so widely and achieve renown as Kentucky Bluegrass? No one really knows, but probably it was just a chance passenger on the early ships bringing colonists and supplies to the newly discovered lands of the West. Of these first landings in eastern America there is much of derring-do, but again no thought of record for an ordinary pasture grass. Who would send Sir Walter Raleigh a prosaic report on shipboard stockfeed, rather than the romance of a new continent beset with "savages" and treasure?

Yet, Capt. Barlowe, reporting to Raleigh on discovering Virginia in 1584, mentions trial planting to test the soil. Even then might bluegrass have been introduced—as weed seed in the crop, or in old shipboard straw thrown out upon the land. In 1586 the governor of Sir Richard Grenville's colony in Virginia reported to Raleigh: "—we had sown enough grain fields to give us food for a year." Certainly bluegrass might have been among these small grains, especially in a day of hand threshing and careless win-

nowing. Perhaps already was *Poa pratensis* working westward to its destiny in Kentucky?

Migration of this pioneer grass could proceed with giant strides only as colonization felled the forest and turned the land. Grasses don't flourish in the heavy forest, and except for infrequent Indian clearings all eastern North America was a solid blanket of forest at the time of Raleigh. But by 1620 the inexorable nibblings at the seemingly limitless forest were well under way. Capt. John Smith reports: "James Towne is yet their chiefe seat most of the wood destroyed, little corne there planted, but all converted into pasture and gardens; wherein doth grow all manner of herbs and roots we have in England in abundance and as good grasse as can be—" William Penn, Thomas Jefferson, Benjamin Franklin and the few New World botanists of the day, all noted in their writings the ready invasion of cleared lands by bluegrass and fellow pasture migrants. By Revolutionary times there was no doubt of bluegrass being widely spread through all of settled America.

The latter half of the 18th century was marked by adventurous Virginians crossing the mountains and founding a few settlements west of the Alleghenies. Daniel Boone and other explorers reported parts of Kentucky a veritable sea of grass. And strangely, at least in the Ohio Valley, the open land was already conquered by white man's Old World partner in exploitation, bluegrass. Bluegrass seems to have beaten Boone to the West!

It is unlikely that bluegrass worked its own way westward through the forested mountains, or that the very



early explorers and Indian traders would have dispersed bluegrass seed. Yet here was bluegrass, reliably reported, in the wilderness of Ohio, Indiana, and Kentucky, ahead of settlement!

The most reasonable surmise is that bluegrass slipped around the mountains, via the St. Lawrence Valley and the Great Lakes country, with the French. Marquette and LaSalle, in 1672 and 1682, had opened missions in the Illinois country. Forts and settlements were established at Kaskaskia (Ill.) and Vincennes on the Wabash by 1700 and 1702. These were reported flourishing when Charlevoix visited the area in 1721. The French missionaries were noted for ability to live and work with the Indians, and part of their program included distribution of seeds. The noted traveler Per Kalm had commented in 1749 on the luxuriant bluegrass pastures of French Canada, and it seems reasonable to suppose bluegrass introduction to the Ohio Valley by the missionaries, a good half century before Boone ever saw Kentucky. Birkbeck, in *Letters from Illinois*, 1818, writes: "—Where the little caravans have encamped as they crossed the prairies, and have given their cattle hay made of these perennial grasses, there remains ever after a spot of green turf for the instruction and encouragement of future improvers—a fact which, I think, is conclusive against the prevailing notion that the natural grasses, as they are called, are the best adapted to every soil and climate."

What, then, of the epochal meeting of colonists from Virginia and bluegrass from the west, in Kentucky during the 19th century? Levering, relating Indiana history, states: "soldiers from Kentucky, who fought under Gov. Harrison in the battle of Tippecanoe in 1811, discovered the superior qualities of bluegrass—on return home they carried seed and sowed on lime-

stone soil 'this grass which has made Kentucky famous! Mrs. Hamilton Lotz of Hamilton Tnshp., — claims Delaware County furnished the seed for the famous bluegrass of 'Kentucky'. Whether Indiana and the Illinois country were way stations, or whether bluegrass came over the hills from the East, the species found superb growing on the limestone soils near Lexington,—the bluegrass country.

There is no exact instant bluegrass became known for Kentucky. Early plant collectors writing from 1813 to 1833 list *Poa pratensis*, but do not mention Kentucky bluegrass among its common names. Yet Well's *Yearbook of Agriculture for 1855-6* states: "—In Kentucky it is called Kentucky bluegrass.—succeeds far better—than it does in any part of Europe where it is native". The adaptability of bluegrass, and its ability to live with man, made possible this joint venture in a new land.

Today Kentucky bluegrass is very much at home throughout the Midwest, Northeastern North America, The Rocky Mountain area, and on the Pacific coast, too. It becomes by adoption and descent as full-fledged an American as any family tree can claim. Starting as a pasture grass, Kentucky bluegrass has risen to its greatest glory as America's number one lawn grass. Kentucky Bluegrass, pioneer extraordinary, is as basic to fine lawns as is steel to industry.

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### DON'T FORGET

Iris day at Lemoine Bechtold's garden, 4201 S. University Blvd., Saturday, August 14. Each member is entitled to 6 choice rhizomes and 6 extra for each new member secured as well as 6 for the new member.



## CARE OF LAWN AFTER SEEDING

By L. D. HAMMER

**D**ISCUSSIONS on care of a lawn after seeding will usually include the following five topics: Mulching, watering, weeding, mowing and feeding.

The application of a mulch on the surface of the seed bed after seeding and prior to watering will save much time and a world of disappointment. Three-fourths of a yard of well pulverized rotted manure, peat, or compost over each 1,000 sq.ft. will aid in cutting down the number of waterings needed and in preventing runoff.

A good watering program in average soil and weather might look something like this:

First Month—2 waterings a day  
(noon and evening)

4th and 5th week—1 watering a day

5th and 6th week—1 watering  
every other day

7th and 8th week—1 watering  
every third day

9th and 10th week—1 watering  
every fourth or fifth day

10th week and on—1 watering  
every fifth to seventh day

Frequent light applications of water are necessary at first to insure that the soil will not dry out until germination is complete and the young plants have established a root system and somewhat of a ground cover. Less frequent watering in the later portion of the program means more water per application and is recommended because it will stimulate deeper root development. This program is a guide only and must be altered during periods of dry winds, rain or dense overcast or in various kinds of soil.

Weeds are a constant nuisance in all new lawns for the seed is present in most soils and in most available organic materials used as soil condi-

tioners. They are not, as some people are inclined to believe, ordinarily found in lawn seed mixtures or in commercial fertilizers. Mowing these weeds when they reach a height of 3 inches is the only practical control as weedicides may do more harm than good to a new lawn.

Mowing with a sharp reel type mower set to cut no less than  $1\frac{3}{4}$  inches should begin as soon as weeds or patches of grass reach 3 inches. Frequent mowings just prior to watering will allow the clippings to lie where they fall without smothering the young plants.

Any time during the second month of growth the grass may have a tendency to die back on the tips and take on a yellow cast. This is not an unusual condition and is commonly called the "6 weeks slump". This is caused by the temporary tying up of all available soil nitrogen by soil bacteria in the process of breaking down the organic material which was incorporated in the seed bed prior to seeding. A light application of nitrogen in the form of an organic commercial fertilizer will solve this problem until such time as the bacterial action returns to normal.

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### SPRINKLER SWITCH

When watering the new lawn it is usually possible to avoid sprinkler-tracking and foot-printing soft soil. Since the newer light weight hose has come on the market, most sprinklers and hose will lift with a hooked wire on the end of a light pole. A board temporarily laid at the edge of the watered area, or thin patches of straw strategically placed for a footing, afford good approaches.



## LAWN GRASS IRRIGATION

By GEORGE BEACH

A HOME owner recently wrote the Colorado A & M College: "We, like most Colorado people today have sprinkling restrictions. We are allowed two hours a week—1 hour Tuesday and 1 hour Friday. My question is this, should I try to sprinkle the whole lawn each time or use my sprinkling time to keep only a part of the lawn green?"

The question has often been asked: "What is the best way to water a lawn?" The answer given is usually the same as for watering any plant. *Water the plants when they need it.* The only way to give a more specific answer than this is to know three important factors which determine a plant's need for water, (1) the nature of the soil; (2) the depth of roots, and (3) the rate and amount of water applied.

If a soil is very loose and sandy, of course, water runs rapidly through it and irrigation must be more frequent than where the soil is clayey or where it has been compacted by traffic.

After a rain or irrigation, a given depth of a well-drained soil will hold a certain amount of water, depending on its texture or particle sizes. This amount is called "field capacity." Any water applied in excess of a soil's field capacity will drain out. The drier the soil, the more water is required to wet it to a given depth. If soil is dried until grass wilts, a sandy soil will require about  $1\frac{1}{2}$  inches of water to wet it to a two foot depth; that is, a  $1\frac{1}{2}$  inch rain which all soaks in, or a comparable application from the hose. (Time the run of water through your sprinkler into a container of known volume and you will learn the output in gallons per hour. Measure the area covered by the sprinkler and

you will know how long you must sprinkle to get an inch of water onto your lawn.) An inch of water on 1000 sq. ft. of lawn is approximately 625 gallons.

While  $1\frac{1}{2}$  inches of water will bring a 2-foot depth of sandy soil to field capacity, 3 inches is required for loams and 5 inches for clays.

Even when pressure is low and the soil is dry, many people waste water through surface run-off, assuming that such dry soil surely will soak up all the water in such a puny stream. Perhaps your sprinkler puts water onto the surface near the nozzle at a faster rate than the soil can absorb it, while the outer edges of the sprinkler pattern are receiving very little water.

To learn the characteristics of your sprinkling equipment, so as to know how much overlap of sprinkler patterns you need in moving to a new set—select a level area and set a row or two of coffee cans every foot or so extending radially from the sprinkler to the edge of the spray. After it has operated for some time, notice whether the output varies at these different locations.

On slopes or on tightly compacted soils it is often necessary to move the sprinkler very frequently to avoid surface run off which wastes not only the water but the soil itself by eroding the surface and uncovering shallow roots.

Grass roots can, and should penetrate to a depth of at least two feet. If the moisture supply can be maintained near field capacity in this two-foot depth, the grass will normally have good deep roots. However, during a prolonged drought, if one sprinkled the whole lawn for only two hours a week he would maintain field



capacity with difficulty in the surface inch or two, thereby encouraging a very shallow root growth. When most of the roots of turf are very near the surface, frequent light irrigation is essential to keep the grass green. And conversely, it is usually a program of too light and too frequent irrigation which produces shallow rooted lawns which burn more quickly in hot weather, than do the deeper-rooted lawns.

Water should be applied in such a way that it will soak down deep, at the same time avoiding surface runoff. Such a watering will last several days to a week or more. A part of the lawn should be watered thoroughly at one time if it is impossible to do the whole lawn properly, and then allow several days to a week or more to elapse before returning to this part. Lawns are often given more water than they need, even under what seem rigid sprinkling restrictions. Small, shady lawns are not improved by a dog-in-the-manger attitude toward watering restrictions.

The rate and amount of water applied is important. If lawn sprinkling is done with the nozzle held in the hand, there often is an impatience to finish the job which results in the frequent light irrigation that makes shallow and easily-damaged roots. It is a practice expensive in time, but in places where much surface runoff occurs it may be the only way to do a superior job of watering unless a sprinkler system can be contrived which will prevent surface runoff and still allow deep enough penetration. Very little water can be added to a dry surface without runoff, but after a little water has penetrated, more can be added soon after the first without runoff. A few minutes later, still more will soak in, etc. This is the particular value in watering difficult surfaces by hand, but the time consumed to do

a good job and the impatience to get it done often result in an inadequate job.

Lawn grass will survive for a surprisingly long time without any irrigation in addition to natural rainfall even though the turf does turn brown between rains. Shallow-rooted individual plants often die under drought conditions while the deeper-rooted ones root still deeper. Weed invasion occurs under such conditions, however, and the weeds aggravate the situation until the moisture again becomes sufficient to allow grass to compete successfully with the weeds.

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### A BOUQUET TO MRS. GARREY

For her leadership in selling approximately 450 tickets for the lecture of Dr. L. C. Chadwick, Professor of Horticulture at Ohio State University, held at Phipps Auditorium on June 10, in connection with the National Convention of the Men's Garden Clubs. The Clubs requested the cooperation of the Association in giving Dr. Chadwick a good sized audience for his lecture on European and American Gardens. Mrs. Garrey really did a job, but we regret to say that in the doing she talked and worked herself into bed with laryngitis. The thanks of the Association to her for so effectively handling this project. Incidentally the audience would have been pretty slim had it not been for her efforts, since the number of delegates to the Convention was much smaller than had been anticipated—about 300.

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The golden color of beautiful Hyperion Daylily, blended with purple Platycodon, with masses of pale pink and white Phlox makes a pretty picture in a friend's garden. Hyperion is a very soft yellow or it could not be used here.



# WHAT KIND OF A LAWN WILL YOU HAVE?

By CHARLES M. DRAGE

Extension Horticulturist Colorado A & M College



*1. Rough grading completed.*

EVERYONE must decide what kind of a lawn he will have. The decision that is reached must be based on many factors other than desire. While desire is necessary, it may be the essential driving force, desire alone will not result in a good lawn. The soil type and capability, availability and cost of water, ability to finance the establishment of grass and

*2. Small tractor discing up ground in preparation for seeding.*



meet the subsequent maintenance costs as well as the degree of desire must be considered. Perhaps all of us desire a good lawn but perhaps there are some of us who cannot afford a good lawn and there must be some of us who do not have the time to maintain a lawn in perfect condition. Then too, there are some of us who have acquired lawns in one way or another that can never be much more than ground cover. One other factor necessary for a good lawn is Green Thumb knowledge and its application.



*3. Applying seed with a spreader.*

It is important that a decision be made to prevent worry and disappointment in the future. Misunderstandings frequently result when a decision has not been reached. Good lawns are expensive to establish and they are expensive to maintain. The great majority of our lawn contractors who contract to establish grass or who contract to maintain a turfed area deliver in direct proportion to what they



are paid. We usually get what we pay for.

To help you decide what kind of a lawn you will have it is necessary first of all to classify lawns; lawns can be classified into three kinds—excellent lawns, good lawns and utility lawns.

A. *Excellent lawns.* An excellent lawn is beautiful and weed free. A straight Bluegrass strain is used. They are expensive to establish and maintain. They require the liberal use of fertilizer and water, both applied correctly. During the growing season they will be mowed quite frequently, perhaps three or four times a week during the active growing seasons in early spring and late fall. A well adjusted and sharp reel type mower will be used. The grass is deep-rooted, it will stand a lot of wear and abuse, the



5. Carefully "watering up" the new grass.

A reel or a rotary mower will be used. Weeds are likely to occur and 2,4-D will be used annually.

C. *Utility Lawns.* The utility lawn provides ground cover. Very little attention is given to soil preparation previous to seeding. Economy grass seed mixtures, perhaps with little Bluegrass and low germination, will be used. Fertilizer may be used every two or three years or never. The lawn may suffer acutely for the lack of water, or it may be over-watered or improperly watered. Weeds are always a problem and 2,4-D may or may not be used. Any type of a mower, regardless of condition may be used, but mowing is relatively infrequent.

The establishment of an excellent lawn does not insure a perpetually excellent lawn, but it makes one possible. Without proper establishment all that can be secured, regardless of maintenance, is a good lawn. A util-



4. Dragging the yard after being fertilized and seeded.

color and texture are good and problems seldom occur.

B. *Good Lawns.* Good lawns are established with less attention being paid to soil preparation preceding seeding. A blend of different grasses, predominantly Bluegrass with perhaps some clover will be used. Less fertilizer will be applied each year, perhaps only one feeding per year. Less water will be used but it will be used properly. Mowing will be less frequent.

6. The grass is up and is receiving a light application of fertilizer to combat the "six weeks slump."





ity lawn may be the result of poor establishment even when all of the proper methods of maintenance are followed.

### A. To Establish an Excellent Lawn.

(1,000 square feet of surface)

#### 1. Soil preparation.

Apply 1,000-2,000 pounds of well-rotted manure, leafmold or compost. Supplement with 25 to 50 pounds of treble-superphosphate. On extremely heavy and extremely light soils, 80 to 100 pounds of peat should be added. Thoroughly incorporate these materials in the top 6-8 inches of soil.

#### 2. Seeding.

Seed a pure strain of Bluegrass in late summer after all weeds are under control and the seedbed is firm and well pulverized, with moisture close to the surface. Seed at the rate of 3 to 5 pounds. Mulch with one-fourth inch of pulverized sheep and peat, manure, leafmold or compost.

#### 3. Watering.

Water once or twice a day with a fine mist or spray. When grass appears gradually increase interval between watering but apply more water each time.

#### 4. Feeding.

Four to six weeks after seeding, apply and water in 10 pounds of ammonium sulfate OR 5 pounds of ammonium sulfate plus 15 pounds of complete low analysis fertilizer OR 30 pounds complete low analysis fertilizer.

#### 5. Mowing.

First mowing, clip one-inch from blades when they reach one and one-half inches. Next mowing, clip one-half inch when grass is two inches. Subsequent mowing, clip one-half inch when grass reaches two or two and one-half inches.

### B. Maintenance of Excellent Lawns.

#### 1. Watering.

Withhold water in late spring. Water infrequently but thoroughly. Water until root zone is saturated (use a probe). Allow the soil to dry before next watering. The interval between watering will be determined by soil type, depth of root penetration and availability of water.

#### 2. Mowing.

At first sign of growth in spring, rake lightly to remove rubbish and dead grass but delay mowing until new grass reaches two and one-half inches, clip one-half inch off with sharp, well adjusted mower. Interval between mowing is determined by growth of grass, mow when one-half inch of blade can be removed and when grass is two to two and one-half inches high. Leave clippings. Make last mowing so that grass will be two and one-half inches high during winter. (Exceptions: Bent grass, Crabgrass control and renovation.)

#### 3. Feeding.

Excellent grass can use 6 pounds of available nitrogen per year, per 1,000 square feet. This equals 30 pounds of ammonium sulfate (two and one-half gallons or 15 one pound coffee cans full) OR 45 pounds of complete low analysis fertilizer plus 15 pounds of ammonium sulfate, OR 90 pounds complete low analysis fertilizer. Feed three times per year. Divide fertilizer in three equal parts. Make first feeding at first sign of growth in spring, second feeding four to six weeks later and last feeding in late summer.

Now after you have studied these recommendations I wonder what your reaction is? One thing is certain, it does pay to establish an excellent lawn. Recommendations on mowing and watering apply to all established lawns. I have a neighbor that never



applies any fertilizer, he waters correctly, mows a little close (he doesn't mow very often), there are quite a few weeds in his lawn but he has an inexpensive ground cover. Now me, I try to water and mow correctly. I use just one-half as much fertilizer as is recommended for an excellent lawn. Most of the time I get by by mowing once every 7-10 days and 10-14 days in hot weather. I have to use 2,4-D annually. My lawn was never established to be an excellent lawn but I think it will classify as good.

## WHERE DO TURF RECOMMENDATIONS ORIGINATE?

CHAS. M. DRAGE

Extension Horticulturist Colorado A & M College

The source of turf recommendations is private and public research work combined with demonstrations and testing programs and many years of practical experience. The best recommendations are those that originate close to home. During the past two or three years the leaders engaged in turf work in Colorado have become extremely active in research and testing programs. This is particularly true of the public officials, commercial and business men engaged in turf work, the public and private golf course superintendents and Colorado A & M College.

The results of work done cooperatively in Colorado during the next two or three years will be far greater than the accumulative work accomplished since Colorado became a state. For example, at Colorado A & M work is now underway on watering, crabgrass control, variety testing, pre-emergence weed control and fertilizers. These plots will be visited by many turf people at the field day in Fort Collins on September 15.



*Fertilizer demonstration in Luther Park, Greeley, Colorado. Treatments applied May 25, 1953; picture taken June 24, 1953. Each plot 100 square feet. (3) Sequestrene, 21 grams. (1) Sulfate of ammonia, 1 lb. (5) No treatment. (4) Sulfate of ammonia plus Sequestrene. (2) Ferrous ammonium sulfate, 3 lbs.*

*With the cooperation of park and school officials and County Agricultural Agents, this demonstration was conducted in Delta, Denver, Grand Junction, Greeley, Fort Collins and Montrose in 1953.*

*In 1954 long time and more inclusive demonstrations are being conducted in Englewood, Aurora and Fort Collins. Clipping records are being made at Fort Collins. The demonstrations include a comparison of nitrogen alone, complete low analysis fertilizers, and nitrogen plus iron. Plots are so arranged so that one series receives one feeding per year, one series receives two feedings and one series receives three feedings.*





## LAWN CARE

By HERBERT C. GUNDELL

### When and How to Mow

**N**OTHING can destroy the pleasing appearance of a good lawn more rapidly than improper and untimely mowing practices. A good bluegrass turf will take some abuse and still remain in good condition but if it is continuously mowed shorter than advisable, it will eventually turn off color and give a less vigorous appearance. Excellent results in this area have been obtained by mowing Kentucky bluegrass turf from  $1\frac{3}{4}$  to 2 inches. A lawn should be mowed not only once every week but twice a week so that the growth to be removed is at no time more than a half inch of grass blades. The clippings should be left to remain on the lawn. When the mowing is done often enough they will quickly disappear and form a moisture saving mulch over the top soil area.

The question of mechanical mowers versus hand mowers has been argued often and hard. It depends entirely on the size of your lawn area and your ability to afford a mechanical mower. A good hand mower is a far better investment than a bargain power mower. The home owner should be cautious to check cutting height adjustment of any mower before making the purchase.

Another important question is that of reel type against rotary type cutting mowers. For a fine turf a rotary mower will not give the desired quality and effect that can be expected. A reel type mower is still the recommended kind for bluegrass lawns. Where large areas of drought resistant or coarser grasses are maintained for general appearance, a rotary blade type mower will do a very satisfactory job.

### Lawn Fertilizers—What and When

To maintain good green turf color throughout the season most lawns require two to three applications of fertilizer each year. Under good lawn management, where the clippings are allowed to remain to act as a mulch, applications of commercial fertilizer that are high in Nitrogen content will achieve desired results. An important factor affecting the success of lawn fertilization is proper timing of the application. The spring application will do the most good, if the lawn has been allowed to make its initial growth on stored soil nutrients. Recommended time of application is then between April 20th and May 15th for best spring and early summer results. The late summer or early fall application of commercial fertilizer should be applied between August 15th and Labor day. Later applications may induce late succulence when the lawn should really harden off for the dormant season.

Home owners have a wide selection of commercial fertilizers to choose from. Wise gardeners inspect the fertilizer analysis on the bag prior to purchase. Some commercial fertilizers are complete, containing Nitrogen, Phosphoric Acid, and Potash in quickly available form. The first figure in an analysis like 6-10-4 represents the percentage of available nitrogen, the second stands for available phosphoric acid, and the third figure indicates the amount of potash percentage-wise.

Commercial fertilizers should be purchased for the specific purpose for which they are intended. Lawns require mostly straight applications of nitrogen fertilizer. Ammonium sulfate is one of these that is commonly





used in lawn fertilization. It pays however to give a lawn a complete analysis fertilizer feeding once in two years to replenish phosphate and potash depletion.

Organic commercial fertilizers that have a sewage base are also popular with home gardeners. These fertilizers, however are a little more expensive on a cost per pound basis of nitrogen. Organics are more slowly available, therefore eliminate practically all danger of burning.

### Weeds in Your Lawn?

When weeds grow better and faster in our lawns than the desirable turf grasses it is time that we draw some important conclusions to re-establish fine quality turf. One of the most common causes for a thick stand of weeds is continued over-watering. Shallow and frequent lawn irrigation puts a maximum of moisture supply close to the ground level, but allows the sub-soil, where Kentucky Bluegrass is normally rooted, to become deficient in moisture.

Annual weeds have very short roots and depend on this oversupply of irrigation water to obtain plenty of water and nourishment. So we need to adjust our watering program in such a way, that the perennial grasses get the water they need, but the short-rooted weeds will be short of moisture. To do this we discontinue daily waterings, and irrigate each lawn section

preferably only once per week, but long enough in each setting that we apply from 1 to 1½ inches of water.

This will help a long ways to reduce weeds in the future. Actually such pesky weeds as dandelion, plantain and dock appear annually in the best of lawns. These weeds should be controlled with the amine form of 2,4-D herbicides, that are readily available at local seed and garden supply houses under many different commercial labels. Important is the proper timing for application. 2,4-D works very well, if the material is applied in the morning of a warm day (temp, above 75 degree F.) on turf that has been irrigated the previous day. After the weedicide is applied water should not be provided for at least 3 to 4 days to allow the weedicide to do a good job for you. Chickweed, yarrow, and euphorbia repens are also common lawn weeds in this area. They are a little more susceptible to 2,4,5-T a very similar product to 2,4-D. Several applications may be necessary to get the job done. Most common lawn weeds produce a great many seeds per plant. Eradicate them before they mature and your weed problem will be a lesser one next year.

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He who becomes impassioned of a flower, a blade of grass, a butterfly's wing, a nest, a shell, wraps his passion around a small thing that always contains a greater truth.—Maeterlinck.



## A GRUESOME STORY

By DR. ROBERT W. SCHERY

**I**T is late May. Hot weather is in the offing, and the Crabgrass seedlings peeking now from the seclusion of turf facing trying times, belie their look of youthful innocence. Unchecked, in a few short weeks, each seedling will graduate to the maturity of a husky rosette, and by midsummer will be a subversive focal point for rooting runners radiating in all directions, that can insidiously enlarge the plant to serving platter proportions. Whether saucer size or platter, each Crabgrass cluster is in competition with the planted grass, for space, for air, for nutriment, for water. By August each wiry stem cringing beneath best mowing heights, will produce seed generously, to perpetuate this nuisance yet another year. Old plants, mission accomplished, will pockmark the lawn at first killing frost with ugly brown patches, the fruits of summer sabotage.

Sounds gruesome;—and it can be,

—for the lawn nursed toward perfection by care and the good growing weather of spring, or for the owner, if he tries to pull Crabgrass by hand. Gruesome unless Dr. Home-owner prescribes an anti-Crabgrass remedy to cure the lawn trouble without initiating the aches of “gardener’s back”.

Treatment with phenyl mercury compounds, such as the proprietary product SCUTL, will selectively kill out the Crabgrass, without injury to the permanent turf. It provides a bonus of disease protection to the good grass, even as it eliminates Crabgrass. Fading away of the Crabgrass, greener turf with less disease, are conveniently possible by wheeling out the spreader for a few quick weekly applications.

In brief, treatment consists of about 4 applications at 5-7 day intervals, started about rose-blooming time. Once begun the treatment must be kept up at this prescribed interval, come what may in the way of weather,



CRABGRASS - *Digitaria* spp.





*Left side treated with crabgrass killer, and right side untreated. Crabgrass is dead where treated. Sometimes this treatment will also kill the clover.*

to get full and cumulative benefit. Insofar as possible application should be avoided immediately before rain and is best made on turf fairly recently mown. In some instances, where drought or climate makes Crabgrass unusually resistant, it might be wise to spread granular materials to dew-wet grass of early morning, or evening if there is an evening dew. There might be some temporary discoloration of the permanent grass then, though it soon snaps back to normal. A quick, fine mist from the hose,—not a watering down,—can simulate dew at the con-

venience of the lawn master, to help the particles cling to the Crabgrass leaf.

Crabgrass succumbs gradually,—just fades away to a brown wither of nothingness in a period of a few weeks. Yellowing will likely be noticeable within several days. In later summer, by the time Crabgrass has gotten tough to mow and tough to kill, double strength or a few additional applications may be needed. Even then spending is saving, for seed heads eliminated mean reduced Crabgrass potential next year.



## LAWN PESTS

By GORDON T. MICKLE

Extension Entomologist

### 1. Earthworms and Night Crawlers

THE benefits of earthworms and night crawlers in the soil are controversial. Their assistance in the aeration of the soil cannot be challenged but it is questionable that they add anything to the fertility of the soil. One might ask "Do you ever find earthworms in quantity in a non-fertile soil?" Earthworms and night crawlers become a nuisance in the lawn when they cast up small mounds of soil causing an unsightly appearance and making the lawn rough and difficult to mow. Night crawlers are especially serious in this respect.

#### CONTROL

*Arsenate of lead* has long been used in controlling these worms and is still an effective insecticide. It should be used at the rate of 5 pounds per 1000 square feet of lawn surface. Often this insecticide is mixed with about a bushel of sand so that it can be distributed more evenly over the soil. Following its application the lawn should be irrigated moderately to carry the arsenate of lead down to where the worms are located. If this is done, and the insecticide is applied at the proper rate there is very little danger in poisoning children or pets that frequent the lawn.

Although no experimental work has been conducted in Colorado for the control of these pests with chlordane, aldrin, dieldrin and related insecticides, they have been used successfully by the Tropical Earthworm Project in the East. However, they are much slower to kill than arsenate of lead, often requiring several weeks. If one wishes to try these insecticides, the following rates of application are suggested: chlordane: 1 quart of emul-

sion or 2½ pounds of 40% wettable powder mixed with 50 gallons of water (or smaller amounts of water) and sprayed uniformly over 1000 square feet of lawn; aldrin: use 1 quart of the emulsion per 1000 square feet of lawn.

*Corrosive sublimate* (bichloride of mercury). Use 2 to 3 ounces of corrosive sublimate dissolved in 50 gallons of water. Apply to 1000 square feet of lawn. Water lawn thoroughly after the corrosive sublimate is applied. Sometimes a slight burning occurs, especially during hot, dry weather. However, this is not permanent.

Corrosive sublimate can also be applied dry. Mix 2 to 3 ounces to a bushel of sand. Apply the mixture over 1000 square feet of lawn, followed by a thorough watering.

*Note:* Corrosive sublimate is quite poisonous and should be kept out of the reach of children and pets. It also corrodes metal and the solution should not be allowed to stand in metal containers. Such should be washed immediately after being used. Dead worms appearing on the surface of the grass after treatment should be collected to prevent bird poisoning.

### 2. White grubs

The larvae of May and June beetles occasionally are found in lawns and can cause extensive damage. They feed on the grass roots, eventually causing dead spots in the lawn. White grub damage is easily diagnosed. Upon examination of the dead or sick spots one will find that the turf can be easily lifted due to the fact that all of the roots have been cut. The grubs may or may not be found, depending upon



whether they are still feeding or have gone down further in the soil.

White grubs have a life cycle longer than one year. Unless they are killed they may damage the lawn for two or three seasons, depending upon the species of grubs involved.

### CONTROL

The controls given under earthworms and night crawlers are effective in killing white grubs.

### 3. Spider mites (clover mite).

The clover mite, a lawn pest, becomes a nuisance when it enters houses during the fall and spring months. Although it is harmless to man and animals, its presence is an annoyance to the housewife. Hordes of mites continue to invade houses around the windows and doors on warm sunny days. Due to their minute size, smaller than the ordinary pinhead, mites can crawl through very small openings.

Clover mites are brownish in color, measuring about 1/30th of an inch long. Unlike the true insect, they have 4 pairs instead of 3 pairs of legs. Throughout the summer, or growing season, they feed on various plants by sucking out their juices. Some of the mites pass the winter in the egg stage on various trees while others hibernate. It is the hibernating mite that presents the problem.

At the approach of cold weather, the mites migrate to protective cover and often crawl up the sides of buildings in the sun. From here they easily gain entrance inside. During mild sunny weather, mites may persist throughout the winter months, disappearing temporarily on cold days.

### Control

Mites are very difficult to control under the foregoing conditions. Most of the household type insecticides will kill the mites that are hit during the

time of treatment. However, other mites soon migrate to the treated surfaces but are usually unaffected. There are several miticides on the market that should be of value in controlling these pests on the lawn and shrubbery and if the area treated is of sufficient size to reduce the total mite population, this should prevent some of the difficulties with this pest. Among those miticides suggested are Aramite, Dimite, and others. They should be used according to the directions given on the container by the manufacturer.

Malathion applied to the lawn and shrubbery reportedly has given successful control. It is recommended at the rate of 2½ ounces of the emulsifiable liquid to 10 gallons of water. Malathion has a disagreeable odor but this should soon disappear. The use of this insecticide inside the house would be objectionable from this standpoint.

The application of one of these miticides can be made at any time during the summer but it is suggested that the premises be sprayed in late August or early September just ahead of cool weather. A reduction in the mite population at this time should prevent them from migrating to the house during the sunny days in winter.

In addition to the miticides or insecticides given, dusting sulfur undiluted, or a spray composed of 1 pound of wettable sulfur in 10 gallons of water, may be applied to the grass and shrubbery. Inside the house, other than control with household sprays, frequent use of the vacuum sweeper is suggested.

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### To explain the ending "aceae"

"Aceae" is pronounced a-see (Asee). It is a suffix to denote a plant family as: Rosa, family Rosaceae. Expectations, however, are Compositae, Graminae, Leguminosae, Labiatae and Umbelliferae. H.F.



## COMMON LAWN DISEASES IN COLORADO

C. E. SELISKAR

THE various grasses used in lawns under intensive management are often subjected to diseases of different kinds. Most of these are caused by fungi which live in the soil and attack grasses when conditions are favorable for their development. Common diseases found in Colorado include brown patch, caused by *Pellicularia filamentosa*; fairy ring, caused by *Marasmius oreades*, and other basidiomycetous fungi; and snow mold, caused by species of *Typhula* and *Calonectria*. In addition, lawns may be adversely affected by certain physiogenic conditions, such as poor aeration through soil compaction, or excessive moisture, unfavorable temperature, nutrition, temperature, pH, and light. Generally, when grasses are weakened by adverse physiogenic factors, they are predisposed to greater injury by pathogenic organisms. Thus, while Kentucky bluegrass produces vigorous growth in the cool spring months brown patch is seldom a serious problem. However, when bluegrass development is retarded by higher temperatures found in July and August, the brown patch fungus is more destructive. Proper lawn management increases resistance to disease and permits the more effective action of fungicides in the control of fungous diseases. Most practices that stimulate growth and vigor are advisable.

### Brown Patch

Brown patch, caused by *Pellicularia filamentosa*, is the most common lawn disease in Colorado. It is found on susceptible blue and bent grasses whenever temperatures of 80° F. and above prevail. Light, frequent watering enhances development of the disease, especially during hot weather.

The disease first appears in small, more or less circular areas which progress radially, and the leaves darken and wilt. Affected plants turn brown and die. Occasionally a ring-like pattern may be observed at the periphery of the spot. This is due to the dark mycelium of the fungus intermingling with the blades at the advancing margin. When conditions are favorable the spots enlarge rapidly, sometimes involving large areas of lawn. The spots usually range in size from a few inches to several feet, but spots 6-12 inches are most common.

Various materials have been used to control brown patch. The following dithiocarbamates and thirams are at least partially effective. The amounts listed are for treatment of 500 square feet of lawn. Materials are first mixed with 10-15 gallons of water and applied uniformly as a drench. Tersan and Tersan 75 (50 and 75 percent tetramethyl thiuram disulfide, respectively) at 2.3 and 1.5 ounces; Dithane Z-78 (65 per cent ethylene bis dithiocarbamate) at 8 ounces. Eastern experiment stations report effective control with a mercury chlorice mixture, Calaclor (81 per cent metallic mercury as mercuric and mercurous chlorides) at 1.0 ounce. Crag Turf 531 (Cadmium-copper-zinc chromate, calcium sulfate) at 1.5 ounces; PMAS (10 per cent phenyl mercuric acetate) at 0.05 pint; and Puraturf 177 (20 percent phenyl-amino-cadmium dilactate complex) at 0.8 ounce, are also known to be beneficial.

### Fairy Ring

A number of fungi of the mushroom type are responsible for the appearance of fairy rings in lawns. *Marasmius oreades* is commonly as-



sociated. The rings are composed of fungus fruiting bodies which develop in circular fashion from the concealed vegetation portion (mycelium). From a small point of establishment the fungus grows radially in the soil until conditions are favorable for the development of fruit bodies. These are then produced more or less uniformly near the advancing margin. During dry periods the grass within the ring may turn brown and die.

Fairy ring is difficult to control. The fungicides used for the control of brown patch are of some value. Proper management through fertilization, watering, and aeration are beneficial. Generally, fairy rings are rarely observed in lawns receiving proper care, particularly in lawns treated for the control of other diseases.

### Snow Mold

Snow mold is caused by species of *Typhula* and *Calonectria*. It is occasionally encountered in the early spring during periods of melting snow or during wet winter periods when temperatures are just above freezing. The disease is characterized by the production of conspicuous cottony masses of mycelium which form mat-like over the affected plants. The disease usually appears in roundish patches of an inch to a foot in diameter, the grass within turning brown and dying. Where *Typhula* spp. is involved numerous small brown bodies (sclerotia) may be found on or in the diseased tissues. It is most serious in the high intermountain valleys or in lawn locations which prolong snow cover.

Some experiment stations report satisfactory control through the use of two applications of mercury chlorides (Calaclor, at 1.5 ounces per 500 square feet), one before the first snow forecast in the fall and the second during a midwinter thaw. Other commonly used materials for the control

of brown patch have not been effective against snow mold.

### Other Diseases

There are several common lawn diseases which are of importance in different parts of the country but are not known to occur or are of minor importance in Colorado. Dollar Spot, caused by *Sclerotinia homoeocarpa*, has been reported west of Minnesota. Copper spot, caused by *Gloeocercospora sorghi*, produces small, circular, coppery-brown patches 1-3 inches in diameter. Leaf spot, caused by *Helminthosporium vagans*, is cosmopolitan throughout the United States. It produces small, purple-bordered lesions on the leaves which coalesce and eventually involve the whole plant. It is found in the spring and fall under conditions of cool, humid weather. Stimulation of growth through fertilization is helpful in controlling the disease. Blue mold, caused by the Myxomycete fungus, *Physarum cinereum*, is common on lawns in Colorado. The fungus is saprophytic and causes no injury to the grass. It is characterized by the production of numerous small, bluish-gray, fragile fruit bodies (sporangia) on the blades, which in mass present a characteristic blue color to the affected lawn area. It may encompass several or more square feet. No control measures are necessary, as the fungus disappears within a few days after its appearance. A fungus, *Nigrospora* sp., has been isolated from diseased blue grass plants found in circular brown patches on several occasions during the past two years in Colorado. Its importance has not yet been determined.

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Further source of confusion for the outlander learning English: the antithetical distinction between a green hand and a green thumb.



## WHAT THE DRY SPRING HAS DONE TO LAWNS

MORAS L. SHUBERT

THE Editor asked for an article on the above subject, but there is a strong temptation to write on "What The Dry Spring Has Done to Lawnkeepers". This is because it seems certain that nothing unusual has happened to the lawns, or the soils under them, if a wise program of irrigation has been followed, but at the same time it appears that a lot of people have been unduly worried about the situation.

While it is true that in the Denver area and over much of the high plains and mountain region the precipitation has been only about one-third of normal during the first half of this year, we should remember that we who maintain lawns in the plains areas do not count much on local precipitation during any year. How many people realize that our evaporation potential is about five times our total precipitation? Or in other words, we lose moisture, exposed at the surface or by loss through the leaves of plants, equivalent to about two inches per week during the warm growing season! So we have to put about that amount of water back into the soil in order to grow the kind of plants we ordinarily want for our lawns, gardens, and landscaping in general.

It would help a lot if everyone who takes care of lawns and gardens would have a better understanding of the way in which our soils act as water reservoirs. Then we would all know how to fill this type of reservoir properly.

Good garden loam, when completely dry, is made up of solid matter and empty space in almost equal volumes. That means that a cubic foot

of soil from the garden is made up of about one-half a cubic foot of mineral and organic matter (humus) and that the other half is space contained in pores and cracks of all shapes and sizes. It is because this space volume is so important to good productivity that we stay out of our gardens when the soil is so wet that it is easily compacted.

Many of the pores are so small that they will hold water, but water drains out of the larger pores so that they normally hold air. In a good fertile garden loam, the space volume is about equally divided between the water-storage space and air-storage space. This means that about one-fourth the total volume of good loam is water-storage space.

"Now how is this of any practical importance?" the gardener impatiently asks.

By understanding that the soil, beside supplying minerals to our plants, is also a reservoir for water and air so vital to the roots and the whole plant, we have a working principle to guide us in proper maintenance of lawns and gardens.

For example, we can see that when just a little water is supplied at the surface, it will fill the water-storage pores and be held there. So frequent, light waterings are not only wasteful of water, but bad for the lawn and garden, since they keep the water too near the surface. Since roots can only grow where the soil is moist enough to support them, the plants become shallow-rooted under this harmful kind of irrigation.

It takes about two inches of water, slowly sprinkled on the surface to wet



a heavy clay soil down to about eighteen inches, as determined by experiment this spring. It was also learned that the water moves almost straight down, with very little outward movement from the position of application.

While the water is settling down into the water-storage spaces, the larger air-storage spaces near the surface drain and fill with a fresh supply of air. When all of the water-storage spaces are filled with water, and the air-spaces with air, water will be held almost indefinitely until plants take it out. Soil at this moisture capacity is said to be at *field capacity*.

A simple garden test is to take a handful of moist soil and squeeze it into a clod which should hold its shape until dropped about eighteen inches onto a hard surface, where it should shatter completely. It takes about six hours per inch of moisture (when the soil is dry at the start) for soil moisture to settle down to field capacity. This will vary, of course, depending upon the proportions of sand, clay, and humus.

Since two inches of water supplied per week seems to be a rather average requirement for this area, the question now is "How do we know when we have supplied two inches of water?"

When water is supplied as "artificial rain" by a sprinkler, it is a simple matter to use a home-made rain gauge. This is made of a straight-sided tin can, which is opened so as not to have a rim at the top. After cleaning and drying the can, a spot of paint can be placed at the two-inch level inside the can. The can should be set, as level as possible, half-way between the sprinkler and the widest spread of the spray. When the water caught by the can is two inches deep, it can be assumed that the whole area covered by the spray has received the same amount.

People who have used this method find that they spend less time and worry with their sprinklers, and also that they have better looking plants and lawns with much less waste of water.

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## In Favor of Fall Seeding

By ROBERT W. SCHERY

A man might argue with considerable appeal that the best time to seed a lawn is "when I can best afford the time", or even "when the weather is most enjoyable outdoors". But remember, nature can be a big help when she's on your side, quite a hindrance, multiplying effort, when one tries to buck her seasonal rhythms.

Man's cue, then is to seed in autumn—as soon as the heat and drought of summer is broken. Usually rains are fairly frequent, and gentler, in autumn; and the soil will not dry out as rapidly as in summer. Nevertheless, provision has to be made to sprinkle, gently and frequently—for once a seed is sprouted it cannot be let dry out without lethal effects. So, if at all possible, give your new lawn a foothold in the autumn—a chance to develop a good root system, ready-to-go come spring.

Additional advantages to an autumn seeding date include less weed competition for the new grass, since weeds are past their most vigorous growing period; more workable soil (not soggy as in spring), permitting better seedbed preparation and more convenient working in of the ever necessary fertilizer; and perhaps less pressure from a deluge of other garden activities.

Whenever, wherever, seeding is done, the soil should have been thoroughly worked beforehand, as by discing, rotary tilling or spading, and final finer raking.



## BUFFALOGRASS FROM SEED

By GEORGE M. FISHER

From "Colorado Lawns," by permission

**B**UFFALOGRASS is a highly desirable grass for lawns in the heavier soils of the Eastern Great Plains region of Colorado where the lawns are in a sunny location and not watered too heavily. It forms a firm sod and requires relatively little care.

Improved strains of buffalograss and advanced methods of harvesting and processing have recently been developed. The outcome has been that the making of lawns by seeding with treated seed has largely replaced the sodding with vegetative material. A good buffalograss lawn can now be established in shorter time and at much less expense by planting new, treated seed.

Buffalograss does not like the shade and should be planted on a firm seedbed, free of weeds and with the soil well prepared. One-half inch is the optimum depth for planting this seed, and if planted any deeper, failure is almost sure to result. Where the area is sufficiently large to permit machine operations, drilling with an ordinary wheat drill is the quickest method of planting. For home lawns, however, this is not ordinarily feasible and they must be seeded by broadcasting or by sowing in rows.

Sowing in rows is the fastest method of obtaining complete turf closure, usually in one season, and provides the best weed control. Spacing of 6 to 12 inches between rows is used in the row method, and obviously the closer the rows, the sooner the grass will make complete cover. In row seeding the seed should be spaced about one-half inch apart in the rows, and the rows covered with one-half inch of soil.

By any method, the amount of seed required runs between 1 and 2 pounds

per 1,000 square feet of area seeded. Broadcasting will require the heaviest seeding rate, and closed spacing of the rows by the row method will likewise increase the amount of seed needed.

Planting season for buffalograss extends from April 15 to June 15. Where water is available, the seeding period may be extended to as late as July 15. Optimum time for seeding, where water is available, is between May 15 and June 15, which will provide for cultivation sufficiently far ahead to take care of one or two crops of weeds before planting the grass.

Lawn plantings will spread much faster if weeds are controlled. Broadcast plantings will need to be clipped lightly three or four times during the first growing season to reduce shading from excessive weed growth and to eliminate competition for moisture. In row plantings, where it is possible to control weeds by hand weeding, it is best not to clip the grass during the first season.

As new plantings require some watering the first year if complete closure of turf is to be had, there will, of course, be more weeds than where the seedbed is not watered. Excessive watering is usually detrimental, as it tends to encourage growth of weeds.

While buffalograss requires considerably less mowing than bluegrass, it should be slipped occasionally to produce an even, smooth-appearing turf and to discourage competition from weeds. After the first year, buffalograss lawns may be clipped to a height of 1½ to 2 inches. Lawns which receive some watering will require somewhat closer and more frequent mowing.

Excellent results have been obtained in transplanting sod cubes of blue



gramma, buffalograss, and western wheatgrass on bare soil at Fort Collins. Complete cover was established in 2 years of subnormal rainfall from sods spaced a foot apart in 2- and 3-foot rows. Six-inch cubes are recommended for the sods. They should be set as early as possible in spring, preferably after a heavy rain.

Land should be carefully graded and well prepared. If the sods are set

a little below the surface level, they are better able to benefit from light rainfall. All the soil should be packed firmly after planting to avoid exposure of sods and to prevent undue erosion while the grass is becoming established.

Cultivation is harmful as it loosens runners and encourages erosion. Clipping at a 2-inch height is beneficial, as is also top dressing with soil after the grass has become established.

## HIGH ALTITUDE LAWNS

By HENRY GESTEFIELD

**H**IGH altitude lawns are different, but easy to build and maintain. There is no reason at all NOT to have lawns at altitudes ranging from 7,000 to 9,000 feet. There are thousands of cabins and summer resorts and dude ranches that very easily can have extra beautiful lawns and glades.

There are three ways to establish a mountain lawn under various conditions.

1. Where irrigation, that is flooding, is available, the following has to be done to assure a good stand of grass: Level the ground, fertilize with manure or leaf mold, plow or till; re-level and dike around the edge; pre-water a few times; broadcast seed, 50% Blue Grass (Kentucky), 40% our native high altitude thriving Red Top and 10% White Clover. Comb seed in or spike tooth harrow; cover with 1/2 inch of mulch and leave it alone until grass is sprouted; otherwise if flooded too early, seed will float into ridges and patches. Early spring is the best time to plant. I have put in hundreds of lawns in the San Luis Valley this same way and always had good results.

2. If no irrigation is available but if the area has moist soil, plant seed after ground preparation, before first snow storm or after first snow has melted, cover seed and let nature do

the rest. Always give seed a good covering. Use 20% Fairway Crested Wheatgrass, 30% Kentucky Blue Grass, 40% Red Top and 10% White Clover.

3. Dry land areas, where no watering is available. If your cabin is on south slope, use only dry land grasses. Work the seed into the ground a little deeper than ordinary. Do this before snowfall or real early in the spring to get the benefits of spring showers, and as dry land grasses are deep rooted, they will stand the dry spells wonderfully. Some of the best dry land grasses for lawn purposes are:

Intermediate Wheatgrass, Western Wheatgrass, Crested Wheatgrass, Blue Grama Grass, (not over 8,000 ft.), Sand Love Grass, Mountain Brome Grass, Perennial Rye Grass. All these grasses are hard to cut with lawn mowers if you let them grow too tall. I suggest cutting often, leaving clippings on lawns to get mulch for saving ground moisture.

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## THE HUSBAND-GARDENER BECOMES LAWN-CONSCIOUS

As Reported by HELEN FOWLER

THE husband gardener is talking. He speaks of his wife as "The Gardener". The gardener has always taken grass for granted, like electricity or running-water. As long as the lawn looks alright she never took an active part in its physical welfare, just enjoyed it as a part of the general background. Occasionally she would comment on the fact that it needed cutting; but I really believe this was an unconscious habit, too, of mental telepathy, for she invariably mentioned the mowing at the moment I was about to do it anyway.

Within the last week or so, however, she has not only become aware of the lawn but has assumed a rather critical attitude toward my management of it, and I must say there is some occasion for her concern tho the condition of the lawn is not altogether due to my neglect. The moles for instance were not my fault.

The blind rodents had never been here before, and I do not think they enjoyed their first visit very much. The morning I saw those two long winding ridges across the lawn, I placed red pepper in small holes along the tracks and waited to see what would happen. The next morning I gave this track the same treatment and for the next three days there was nothing new. Then one evening I noticed a slight activity of the turf near the end of a track, hurried for a spade, dug it down in front of the movement and quickly pried up a piece of sod and with it a mole—a foolish looking animal with fine fur. It was the last one we had. I like to think they left on account of the pepper as I do not like poison and the gardener doesn't like traps. I suppose that couldn't be called a bad attack

of moles. There wasn't any need to try traps nor the poisoned bait treatment either. The pepper worked very well and I shall have it ready if they ever decide to come back. In the meantime I have tamped the soil back level along the little ridges, and at least for a while we can consider the mole episode at an end. Unfortunately there are still the brown spots along where the beetle ate grass roots. The good grass is dead in these scattered areas but the tall, unattractive tufts of crab grass are coming along fine as they have an irritating way of lying down in front of the mower and then springing right back erect as soon as the mower has passed.

What I am doing here in these unhappy places is to stir the patches with a rake and spread on a good complete fertilizer that I water in. Then when the ground is dry I rake it again to a fine finish, spread on a generous quantity of the best grass seed mixture, run the rake over it lightly, roll it with an empty roller and sprinkle it gently every evening.

I have always found it difficult to gauge the right amount of grass seed or fertilizer to use when the directions say seven hundred pounds to the acre or even when they say four hundred pounds to the so-and-so. I have bought a spreader and a little lever on this settles the question once and for all. All you do is fill the hopper, set the lever and push the spreader along as you would a lawn mower—only it is much easier.

I have learned not to use lime on the lawn, because I am convinced, rightly or wrongly, that it encourages crab grass. And I have learned also not to use ordinary manure because there is no doubt at all that it brings



in weeds. The best thing for a lawn, I do believe, is plenty of humus but the most rapid-acting applications are the chemical fertilizers and if they are put on properly and the soil is right the grass will get so vigorous that the weeds won't get a chance.

I like to make my major lawn maneuvers at the end of August. That was when I made the lawn originally, and the grass got under way so rapidly that I could have mowed it before the end of the season. As nearly as possible in the spring I rake it over thoroughly and give it fertilizer. Then in June, right after a mowing and right before a good watering, I spread bone meal at the rate of 2 pounds to 100 square feet. From the middle of May to the middle of September I keep the mower set at two inches, so the roots of the grass won't be bothered by the heat and I leave the clippings alone to act as a mulch unless they are long enough to mat down on the turf.

The last week in August, right after a mowing and just before a good watering I rake the lawn thoroughly, clean any crab grass that may have crept in, use a complete fertilizer, seed any poor patches that may have developed and give it a light rolling. Sometimes I spread a thin sowing of grass seed over the whole lawn and I can recommend a similar indulgence to anyone whose lawn is not the last word in luxuriance.

The final work on the lawn when the mowing is over for the season, I spread by hand and rake, about a quarter inch of humus preceded by a final application of bone meal.

The result is certainly worth the effort. I know it took two seasons of no treatment at all (just mowing and watering) for my lawn to degenerate and even then it wasn't so bad as she made it sound. It was really the moles that made her think about the grass, and then she noticed the rest.

Editor  
The Green Thumb  
Denver  
Dear Sir.

My attention has been called to a libelous, scurrilous, sucrrilious, slan-  
erous, obnixous and, in my opinion,  
porfane letter which was printed in  
the June issue of your otherwise ex-  
cellent magazine. This letter was  
signed by someone representing him-  
self or herself as Quercus.

The letter states that I think Ver-  
miculite is an insect powder. What  
does Quercus think I eat for break-  
fast? (Three more Vermiculite box-  
tops and I get a space suit.)

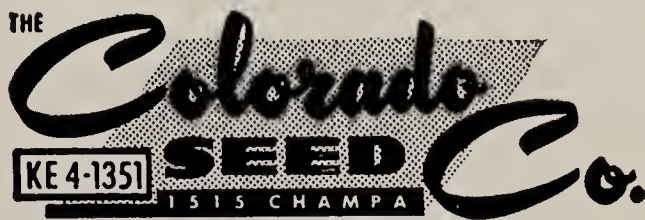
I also know that the Diet of Worms  
is something we feed to what we call  
Robins but are really a species of  
Thrush. Lovebirds and Robins are  
easily distinguished by a trained ob-  
server. Lovebirds are kept in cages.  
Robins occur outside of cages. Other-  
wise there is no particular difference.  
They are just birds.

The resurgence of Quercus, how-  
ever, is a serious matter. Ten years  
ago, more or less, we thought that  
Quercus had been matriculated in one  
of our splendid Colorado educational  
institutions . . . Pueblo, Canon City,  
Ridge . . . I forget which.

Please be advised that I am carefully  
checking the lists of 1954 graduates  
from these institutions, with special  
reference to Ridge.

In the meantime, I suggest that Ken  
Wilmore will agree with my state-  
ment that, in Colorado, than a yew,  
nothing is more yewsless.

JOHN STOCKBRIDGE



Also 1469 Elmira St., Aurora

EM 6-9513

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# GROUND COVERS FOR USE IN AREAS WHERE GRASS REFUSES TO GROW

By HELEN FOWLER

THERE are many places, even on the best ordered properties, where grass is difficult to grow; under trees where there is little or no light or where the heavy drop of rain obliterates grass from year to year; a continuous source of expense, too, may be the steep bank facing the noonday sun.

Today, we are not interested in the general use of ground covers, such as for area-way copings or loggias or patios—there are plants for these and many other situations—but in what plants can be used to cover stretches which rebuff every effort to raise grass. What qualities should these plants possess? They must be low growing, they must be hardy and as easy to care for as grass; then, too, they should be attractive. What plants will grow as well, look as well and take the abuse as well as grass without requiring the care given most lawns? Well, of course, there is no such plant; ground covers do need a little attention now and then, and even tho there are those that require no fertilizing, pruning or cutting, yet, they may grow too tall and cannot be walked upon. In this respect, they are not as serviceable as grass.

There are some ground-cover plants, while they do not replace grass in every respect, which supply a need in many situations. These special purposes might be for dry soil, such as *Polygonum reyneutria*; for rapid increase (where the area is large and there is little money), there is *Rosa wichuriana* which can quickly cover many square feet. Then, there are Evergreens, slow growing but green all winter. There are plants needing special attention and some no attention at all.

In a back number of *Arnoldia* there are fifty of the better ground covers with a mention of a hundred and fifty, planted in the Arnold Arboretum in 1950. There are many that could never be used here, such as *Gaultheria*, *Lirope spicata*, *Vaccinium*, et cetera. There are many tho, that can be used in Denver and Colorado with perfect satisfaction.

First the *Sedum*. I wish to say that there is a great deal of work being done in this genus here, with over sixty species found hardy. While they are not ready for distribution at this time, they soon will be unless the plans "gang aft agley."

The following list of ground covers, tried over the years can be depended upon to replace grass:

*Ajuga reptans*  
*Ajuga genevensis*  
*Arctostaphylos uva-ursi*  
*Euonymus fortunei colorata*  
*Euonymus fortunei kewensis*  
*Lysimachia numularia*  
*Nepeta hederacea* (look out for this except where great areas are to be covered and to be done at little cost).  
*Saponaria ocymoides*  
*Hedera helix*, English Ivy  
*Gypsophila repens*  
*Iberis sempervirens*  
*Juniperus horizontalis*  
*Rosa* "Max Graf"  
*Sedums*, as above  
*Teucrium chamaedrys*  
*Veronica*, several species  
*Vinca minor*, Periwinkle  
*Phlox subulata* might also be used  
*Cotoneaster horizontalis*  
*Convallaria majalis*  
*Epimedium*  
*Pachysandra terminalis*  
 This last named *Pachysandra* has not



proven too hardy at the nursery nor in gardens where used in Denver. We shall try it again, later on this season, by planting under two huge pine trees (it is supposed to do its best under pines). It shall be given special attention by breaking up the soil, feeding heavily and watering carefully. Two or three large, moss-covered rocks are to be added. This should make a good looking entrance if the *Pachysandra* can just be made to grow. If it fails, English Ivy (*Hedera helix*) will be substituted.

## FROM HELEN FOWLER'S GARDEN NOTE BOOK

At this time (July 4th), water restrictions are curbing the making of new lawns; it is thought now that a series of heavy rains thruout the summer would permit lifting of these restrictions in time for planting new lawns early in the fall in Denver, which is an ideal time for sowing grass seed.

*On making of new lawns:* Dig the seed bed 4 or 5 inches or more deep. Don't skimp on this as lawns are made to last a long time.

From August 15 to mid-September is best time to sow seed in Denver; to plant seed as late as October 15 to November 1, is risky. The kind of seed to choose depends on the soil. There are three kinds of seed, Kentucky Blue—which makes big masses of roots; Fescue—which is best for poor, sandy soil; and Clover—which sends its roots deep into the ground, takes up and holds water and allows the grass to stay green during prolonged droughts.

If one pound of seed is enough to cover a certain area, are two pounds better? One pound of seed will cover about 400 sq. ft. If more is used, grass plants would soon choke out each other in the race for food and water; each plant should get its share

of sunshine and should have enough room for root development. It is beneficial to use a roller over seed after planting but be careful to roll but once, as more would interfere with quick seed germination and change the soil texture. It should be left crumbly for best results.

How tall should the grass be before its first mowing? When it is two inches high the first mowing should be made and the mower should be set to leave one and one-half inches. This height allows leaf growth to produce constantly increasing roots. Removing too much of the top tends to weaken the grass, which then might be too weak to fight the weeds.

*Removing Leaves:* Leaves need not be taken off at every falling, in fact, it isn't harmful to let them lie until all of the leaves have fallen from the trees. Use a Japanese broom to scuff off leaves lightly. To employ any other method might be to tear out the plants by the roots.

Run over the points in the above. If carefully followed a luxuriant stand of grass is likely to make you happy in the spring.



## MOUNTAIN PEAT FERTILIZERS

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## LAWN TOOLS

By WENDELL KELLER

NOT too long ago the tools and implements the home owner used for lawn establishment and maintenance were few and simple. Perhaps the most advanced tool in his possession was the hand pushed reel-type lawn mower.

Shortly after the close of World War II the machine age finally caught up with the gardener. New and improved tools appeared on the market just about as rapidly as did new insecticides. The appliances have now been tested, improved and developed to the point where with their use lawn care has become much less drudgery while at the same time permitting the growth of far better turf.

The shortage of labor available for lawn work created a great market which was the stimulus needed to cause industry to place before the cagerly waiting public all sorts of new machines.

The old reel-type hand mower is still far from obsolete, and for the rather small lawn it is still the first choice.

With as little as two lots some gardeners now prefer a power lawn mower and find the 18 inch models quite satisfactory for up to three lots.

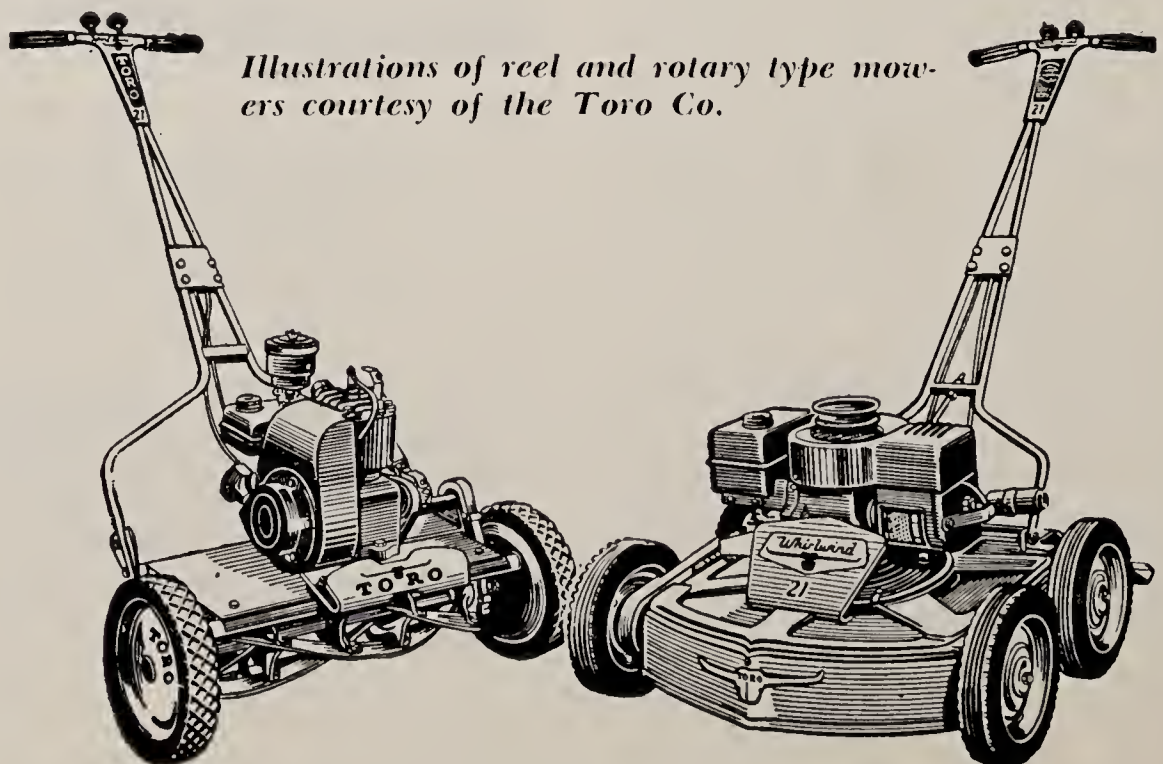
Going above three lots they find the 21 inch will serve them well up to about six lots. From six to ten lots requires a 24 inch model, and above ten lots the selection should be a 30 inch park special which is really an institutional type piece of equipment.

The above are reel-type mowers and the best to use where a neat, well manicured appearance is desired.

The rotary mowers are dual purpose machines that find their better use where many weeds are to be cut as well as lawn grass. They do not cut the grass blades like the reels do and following the sunshine after cutting the turf may develop an overall brownish cast. Some people are not greatly disturbed by this but others are. Many suburban home owners find the rotary mower better suited to their needs and find they can get by without purchasing a reel-type, too.

The standard sizes of rotary machines for smaller grounds use are 18 inch or 20 inch. Institutional sizes run 24 inch and 31 inch. Some models are pushed and others are self-propelled.

The rotary mowers may be used for mulching leaves, too, a task which the reel mowers cannot perform.





There are electric mowing machines to be had too. They are of course ready to go when connected which is one advantage, but this is greatly offset by the nuisance created by the electric cord. Some older homes are not properly wired to carry the electric load created by this type of machine. Ample cutting power from an electric mower is extremely important as an underpowered machine may result in a burned out motor.

Trimmers and edgers have been improved. The hand operated type is still satisfactory for small operations. Medium sized trimming and edging work may be done with an electric trimmer quite readily if distances from outlets are not too great. They are of course all set to go as soon as connected, and they cost only about one half as much as a gasoline motor model.

Larger areas of trimming are better done by the latter. There is no cord to interfere as there is with the electric models.

Suburban gardeners may find enough use to justify the purchase of a small tiller. They are valuable when one has sizeable areas that are tilled yearly for vegetables or annuals and with extensive landscaping that needs regular cultivation. Many tillers may be purchased with attachments such as sickle bar and lawn mower.

The lawn roller due to its simplicity has not changed greatly during the years. It has always seemed to me this tool is improperly named as it is better used to compact a grass seed bed than to roll an established lawn. The real purpose of rolling a lawn is to push grass roots back in the ground that may have heaved over winter. Our lawns suffer very little from heaving.

A lawn roller should not be used to make a rough or uneven lawn level. To accomplish this end the weight

necessary may compact the soil and destroy good soil structure.

Rolling is necessary in the establishing of a lawn. Apply enough weight to the roller to make a firm seedbed.

Aerating tools are used more every day by persons trying to improve heavily compacted soil which is planted with grass. There are small foot operated devices for banks and small lawn areas, and large self-propelled machines for large areas or when one wishes to have the work of aerating done quickly. The large machines may be rented.

There is considerable physical effort needed when using the foot pressure type of aerator. So take it a little easy and spread the job over several days if there is much of an area to be covered.

When selecting lawn sprinklers don't overlook the adjustable part circle models, such as a Rain Bird Model No. 25. These sprinklers make it possible to water from a corner into the lawn rather than from the lawn proper into the corner. They are great for saving water.

For lawns with low branching trees that make watering difficult there are available sprinklers that discharge water low to the ground.

A good walking-sprinkler with automatic shut-off is another water saver to be considered.

Recently to my knowledge at least, there has appeared on the market very inexpensive underground sprinkler systems that may be installed by the purchaser. They may work well on some grounds but not so well on others. It would be wise to know before purchasing that you are getting a well laid out system and that it will operate properly on the water pressure in your area. The pressure on your grounds could be too low or too high.



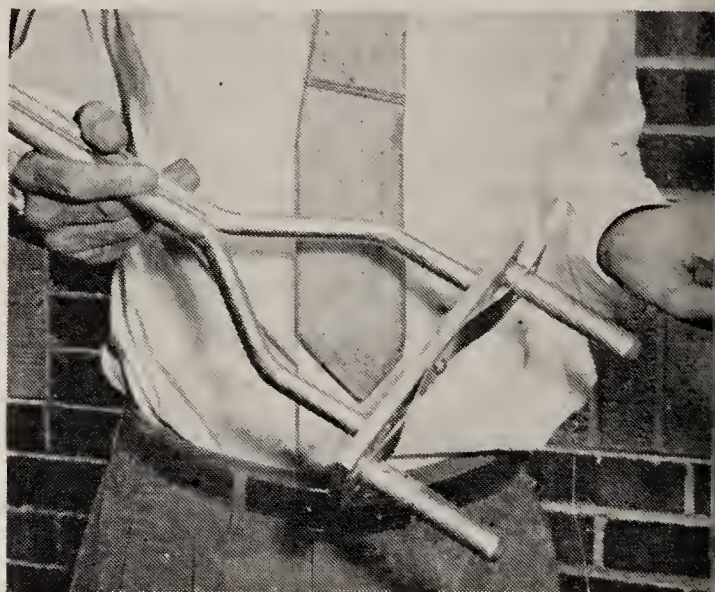
## DRINK WELL, LAWN, DRINK WELL

How to keep friends with the water board and your lawn, too

By DON STEELE

**Y**OU can't drink with your mouth closed. Neither can your lawn. Did you ever pry open a baby's mouth to feed it? Like a baby your lawn can't help itself. Its mouth must be pried open mechanically before its roots can drink fully of that precious water you give it. Baked by the sun, dried out by the wind, and walked on by many feet, older lawns become more and more compacted. Even newer lawns can be almost as tight because their soil was not properly worked and fertilized before the seed was sown. In these lawns the water can go only a little way before the absorption point is reached and the remainder of the water runs off. Studies of several leading universities have shown that water can go only a fraction of an inch into compacted lawns no matter how much is applied. Many, many lawns need to have their mouths pried open if they are going to take the best advantage of that precious stuff the water board is doling out so carefully these days.

Anyone can pry open a baby's mouth, but what to do for a lawn? The recommended process is called aeration, so named because the lawn needs air as well as water. Either of



two ways can be used. You may purchase a hand aerator at your seed store or hire your landscape gardener to use his powerdriven machine. The hand aerator is best for troubled spots, such as slopes, fairy ring, or often walked on places. The machine can be used for larger areas such as an entire lawn. Both methods accomplish the same thing. By means of hollow tines, holes are punched three inches deep and four to six inches apart. A core of soil is removed and thrown onto the lawn. This is not the same as poking holes with a pitch fork or similar implement. This latter process only presses the soil that was in the hole closer to the surrounding area. The removal of the core is essential. Some machines sweep up these cores, but it is much better to leave them on the lawn. They disappear after a good watering and mowing and add mulch to the turf.

In order to get the best results from aeration, the soil must contain the right amount of moisture. If it is too dry, the tines can't penetrate the three inches. If the soil is too wet, the cores cannot be removed. A good soaking one or two days before aera-





tion will insure the correct moisture content.

Like the baby, your lawn needs food and air as well as water. Aeration allows all three essentials to reach the roots rapidly. But this is not all the benefit by any means. Aeration prunes the roots. Lawns like hedges and junipers thicken with pruning. That is why well aerated lawns feel like soft cushions under foot. The vitality of the turf is greatly increased because the root system goes deeper and deeper. Fairy ring, the plague of far too many lawns, can be relieved by aeration since the fungus lives only in damp, compact soil. However, other remedies must usually be employed to combat this condition. The garden editor of the San Francisco Examiner is so enthusiastic about aeration that he predicts it will sometime be considered as important as mowing for lawns. Although this may never be, certainly no single process can do so much for your turf.

Aeration has been used in England for years. Since 1945 it has been employed with ever increasing popularity in America. Golf greens and football fields could not be maintained without aeration except with expensive sodding. Home owners would do well to follow the lead of these professional turf builders.

To have a good lawn you have to "baby" it in many ways. No one thing can do as much for it as prying open its mouth with an aerator.

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## A NEW REMEDY FOR RED SPIDER

By M. WALTER PESMAN

Note: So you are interested only in non-technical, "practical" information; all right, skip this, and keep your red spiders happy!

From England comes good news about a highly successful spray and

dust for combating Red Spider, our difficult plant pest of this Rocky Mountain region. Many gardeners, and tree-men, have hesitated to use DDT heretofore because of its tendency to kill off other insects and thereby favoring red spider. Now we can get the latter.

After large-scale field experiments during 1952 and 1953 and improved methods of production, this chemical, Chlorparacide, or Chlorocide, will be available to commercial English growers early in 1954, distributed by Boots Pure Drug Co., Ltd. Will it reach U.S.A.?

According to an article in "Gardening Illustrated," by A. G. L. Hellyer, Chlorocide is absorbed by the plant and stabilized in the leaf so that one spring application keeps off red spider all summer. Apple trees, thus treated and in immediate proximity to heavily infested neighbors, bore plentiful fruit, and kept healthy leaves with hardly a spider attacking any leaf.

Chlorocide, produced under general direction of Mr. A. W. Billitt, is non-poisonous to warm-blooded animals, including man, and apparently to everything else except red spider; it is "non-tainting" as Mr. Hellyer says, who has himself eaten some of the chemical without ill effect.

Oh, yes, if you want to appear highly learned about this, you may call this an acaricide, say it belongs to the chloro-benzene series, and refer to it by its full name: p-chlorobenzyl p-chlorophenyl sulphide. It was produced, after being tested as a fungicide, an insecticide, acaricide and as a plant growth substance. First 500 samples were tried, of which 40 proved to have acaricidal properties, as far back as 1951. But what you and I are interested in, is that it is death on red spider. And *that* is important, we think.





*Gilpin Lake in the Routt National Forest. Do we want to preserve many of these beautiful spots for the pleasure and inspiration of our children?*

## COLORADO'S SLIP IS SHOWING

By HAL HUBLER

COLORADO is one of the fairest ladies of the land but her slip is showing. The question is whether her slip is all that is showing. The embarrassing situation in which she finds herself is no particular fault of her own but rather the fault of her family which she supports so well. She has what it takes to make her the envy of a great many of her sister states. Her natural beauty and attractiveness are outstanding. As a matter of fact her charms are so fetching that men

from all parts of the world come to visit, see and take advantage of her health-giving climate and wide variety of recreation and other opportunities. She is a wealthy gal; her resources are abundant and there are many riches in her plains, hills and mountains.

Her beauty has been scarred to some extent, perhaps promiscuously and oft-times unnecessarily by her men who have lived so close to her that they have lost total appreciation of her charms and have come to believe that



her resources are inexhaustible. In most respects, however, her family has recognized her worth, the advisability of protecting her and the conservation and wise use of her possessions. They have formed active administrative agencies and provided these agencies with the necessary authority and means to take what action is necessary in her best interest. There is a Game & Fish Department charged with the responsibility of managing and protecting the game and fish resources. There is a State Water Conservation Board which represents the interests of the State in the development and utilization of water. There are other state departments with similar responsibilities as regards her personal affairs.

Now this place where her slip is showing is truly apparent when one takes a second look. As years go by she becomes more popular as a tourist and recreation center, and more of her family rely upon businesses associated therewith for their livelihood. Her wealth pays off in terms of hard cash in the family till and she becomes more and more commercialized. Her young, fresh beauty is changing with the years, as can be expected. The chief concern is that beauty and charm can mellow with the years and become increasingly valuable if treated with respect and will last forever if properly cared for. Her family have not, however, seen fit to provide an administrative agency with the will, authority and means to look after her welfare from the standpoint of protection and conservation of those natural features that make her so desirable.

If it were possible, it would be to the decided advantage of Colorado to trade her family for a more experienced one of a sister state. Pick one at random, an eastern or a middle western state, either or both Pennsylvania and Indiana, older sisters. Neither were blessed with all of Colo-

rado's charms to begin with and many of their natural charms have been seriously marred and even destroyed as results of thoughtlessness on the part of the families as regards conservation. By this time both of these sisters have learned by experience and have seen fit to take the necessary steps to do all within their power to conserve and protect what is left. They were late in recognizing the need for special consideration and care in this respect thus some of their natural beauty has been lost. They now have been thru the mill, they are older and wiser and have learned their lessons. Pennsylvania has in recent years been spending millions in stream and river pollution abatement in a sincere effort to rectify past errors and to regain some of her original charm. Call it face-lifting if you like but the work is merited and it is being financed by tax dollars in this day when taxes have been raised to where they hurt. Indiana has one of the foremost park and conservation organizations in the country. Her family realizes the importance of having such state agencies and are willing to pay for the benefits derived. These are only two of the many states that have learned by experience, the hard way, that conserva-

*Or, do we want to leave our children a land denuded like this?*







*Grand old Pinyon Pine trees in the Pinyon grove north of Fort Collins. A unique botanical area.*

tion of natural resources cannot be left to George but is an overall responsibility of the state.

If the people of Pennsylvania were to change places with those of Colorado today, the odds are that the necessary repairs would immediately be made to the slip and Colorado would have an active and qualified agency with the objective of preservation and proper use of those features that make her attractive to tourists and recreationists.

Indications are that the Colorado family is not willing to observe and benefit by the experiences of her older sisters and must learn by her own experience, which system has proven a difficult, expensive and unsatisfactory

one. Present general reactions to providing a state agency of the type needed are that Colorado has National Forests and National Parks and that Uncle Sam is caring for the state in so far as valuable scenic, scientific, historic and recreation values are concerned. Recently, also, there has been the excuse that the State must cut expenditures, economize, and the creation of a new department would be contrary to the policy.

Now Uncle Sam is a wise old gentleman who looks after his own affairs pretty well. He has seen fit to create in his immediate family, units such as the National Park Service which agency promotes and regulates the use of National parks, monuments, and similar reservations in conformity with the statutory mandate "to conserve the scenery and the natural historic objects and the wildlife therein, and to provide for the enjoyment of the same in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations". He has also created the U. S. Forest Service, which agency is responsible for recognition of scenic and recreation values in areas which it administers. Uncle's principal concern is the preservation of features of outstanding national significance. He is willing to consult with and assist states in their affairs but he will not assume their responsibilities on matters limited to state significance; i.e. He is not responsible for the embarrassment caused Colorado, inasmuch as her slip is showing. There is the

*It is not beautiful when the trees have been removed and the lime quarried.*





fact that she is of age, and the all important matter of states rights involved and Uncle is careful not to infringe upon these rights.

If Colorado were to lose all of her God given charms, attractions and beauties, except those under Uncle's jurisdiction, she would be in a sad condition and there would be decidedly more than her slip showing for there is far more to the state than those features within the boundaries of national forest and national park areas.

Opinions have frequently been expressed to the effect that the Rockies, the massive Rockies, stand alone in that they cannot be disfigured by mankind. What a surprise those who believe this to be true have in store for them when they see the area at Climax, near Leadville, where an entire mountain of mo-lyb-de-num is being removed. Modern, heavy earth-moving equipment employed in the state's water development program has proven the powers of these machines. Accomplishments of man over nature are evident in the Colorado-Big Thompson, transmountain water development project. Canal cuts, exposed penstocks and siphons, tunnel waste disposals and numerous apparent construction scars are reminders of the powers of man to deface the scenery. The atomic age is at hand and the development of more powerful equipment is going forward. Even the Rockies are vulnerable.

Don't misunderstand, the idea is not to prohibit our state to display her charms or discourage development of her resources but rather to assure that adequate consideration is given to all of her values.

The condition of the slip is not particularly critical at this stage. As a matter of fact some of us cannot see where it is showing. Indications are, however, that this condition will become worse if something is not done

about it. It may even reach the stage where it is beyond repair and the price of a new one will fall upon a future generation. Surely a slip is necessary for a lady of Colorado's prominence.

Shall we take the time to consider the matter thoroughly, pin up the slip, and take up the hem where necessary? It won't cost nearly as much as a new one at a later time.

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## LOOK AND LEARN GARDEN VISITS

By SUE KELLY

I OFTEN wonder if you all get the same pleasure from these LOOK AND LEARN GARDEN VISITS that I do. I get to help choose the gardens, meet all the interesting garden owners, talk with the experts and hostesses and then meet some of the visitors! *That* is a recipe for an interesting summer!

We had some interesting reactions on the date and time of the last visit—June 27, Sunday—and the July visits should prove our experiment a success! Many men and women came visiting, and thoroughly enjoyed themselves. I wish more would take advantage of the time and come! We won't have a tour in August, but the September 2, Thursday, 9:30 a.m.-5:00 p.m. visit will come as quickly as we could make it. All gardens will be West, — west Denver, Wheat Ridge, Lakewood — and again, we have a varied list of gardens for you. Here they are:

Mr. and Mrs. Jack Harenberg,  
5725 W. Byron Place

Mr. and Mrs. Donald N. Gilli,  
3735 Marshall St., Wheat Ridge

Mr. and Mrs. Philip T. Handwerk,  
7781 W. 19th Ave., Wheat Ridge

Mr. and Mrs. Charles Eisele, 1009  
Carr Street, Lakewood

Mr. and Mrs. Jack N. Withers,  
9230 Lombardy Lane, Lakewood (Just  
off 10th and Garrison)

Mrs. Hazel Hill, 1330 S. Irving  
Street.

See for yourself! The Harenberg's home and garden will give you a graphic example of modern day architecture in homes and gardens. The garden is tied in with the decorating of the home so that you feel it was all planned in advance and it was. *That's* Jack's business!

The Gilli's home and garden are both very new and charming, with lots of color in the perennial and annual flowers, which fairly beg you to come in and visit. You will love it.

Mr. Handwerk uses his profession to make his and Mrs. Handwerk's home and garden a pleasure to visit. He cuts and lays stonework in such interesting patterns, you want to engage him on the spot!

They raised some of the most beautiful begonias I have ever seen, and I hope they have some to show you this year.

On turning into the Charles Eisele garden, you will be delighted and amazed at the color, variety and size of this garden, and maybe you've seen George's color slide of the salvia in bloom in his garden last year!

Being members of the Denver Rose Society, and since Jack was a past president you can just imagine the roses you will find in this garden. And—that's not all! A small glass house will make you envious of the experiments which they can carry out! Not to mention the plants which they can start for their own garden, and from the size of the place, they will need it over the years!

Mrs. Hill thought at first that she wouldn't have anything to show us when we asked to show her garden! Those begonias she raises would be enough to get you all there, but that isn't all! She has done some wonderful things with her garden this year, and you will enjoy it thoroughly.

I've tried not to sound too flowery in describing these places and I think you will all agree with me, and find that I have *under* rather than *over* described these gardens. Let me know what you think.



## NEW MEMBERSHIPS

May and June, 1954

Barbara J. Nemoyer, 1019 Tucson, Denver 8  
 Chester E. Eccles, Jr., 2300 Balsam, Lakewood, Colorado  
 Mrs. Lillian Johnson, 3025 Albion St., Denver  
 Jack N. Withers, 9230 Lombardy Lane, Lakewood, Colo.  
 A. Woolheater, 1440 Moline, Aurora, Colo.  
 Mrs. L. H. Fagan, Box 236, Berthoud, Colo.  
 Mr. Kenneth Weeks, Rt. 3, Box 130-A, Littleton, Colo.  
 Mr. Robert L. Hoss, 2333 Quebec, Denver 7, Colo.  
 Pat Thomas, 22 Coolidge Drive, Snyder, New York  
 Ruth Wickersham, 306 Elm Circle, Colorado Springs, Colo.  
 Lowell W. Doupe, 380 Carr St., Lakewood, Colo.  
 Charles J. Gaede, 3263 S. Glencoe, Denver 20, Colo.  
 Mrs. James Tillotson, 4810 So. Washington, Englewood, Colo.  
 Mrs. Glenn Clayton, 4940 So. Washington, Englewood, Colo.  
 Loay Winifred Boggess, 1324 E. 9th Ave., Denver, Colo.  
 Mrs. Philip Milstein, 4500 E. 1st Ave., Denver, Colo.  
 Mrs. Richard J. Cahalan, 1660 Reed St., Denver, Colo.  
 Mrs. Frank Storrs, 2389 Nome St., Denver 8, Colo.  
 Helen M. Hamilton, 2525 S. Madison, Denver 10, Colo.  
 Mrs. William Rallins Waggener, 1555 Dahlia St., Denver 7, Colo.  
 Mrs. Charles Coff, 100 So. Franklin, Denver, Colo.  
 Mrs. M. P. Eckman, 5805 E. 3rd Ave., Denver, Colo.  
 Mrs. Rulison Knox, Park Lane Hotel, Denver 9, Colo.  
 Mrs. Beatrice Parker, 805 East 1st St., Loveland, Colo.  
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July and early August is the time to start perennials and bi-ennials, most of which have rather easy culture. There is little danger at this time of year from attacks of the "damping-off" fungus, which plagues gardeners who start annuals in hot-beds in the early spring. The first requirement is the proper soil mixture for the flats. This should consist of one part each of sand, garden soil and compost or peat moss. No plant food should be added until the seedlings have emerged and are large enough to transplant to other flats, there to remain until planting time next year. Mix one 3" potful of plant food to each bushel of soil used in the flats into which the seedlings are transplanted.

Now, what to plant? Among the perennials, shasta daisies, painted daisies, delphinium, columbine, oriental poppies, phlox, gaillardia, veronica and coreopsis, head the list. The bi-ennials include hollyhocks, Canterbury bells, sweet william, English daisies, foxglove, forget-me-nots and pinks. Barely cover the seeds with fine soil, set the flats in water to soak up from the bottom, and keep them shaded and moist until the seedlings emerge. At this time the flats can be moved into full sunlight, and within a few weeks the plants may be either thinned out or transplanted into other flats.

The June Green Thumb credited me with authorship of the article "Woods for Coffins" written over a century ago. Although I may look that old and often feel that old, I probably shall be occupying one of the containers mentioned long before attaining such age. My only connection with the article was in sending it to the Green Thumb as an example of horticultural humor in an early American garden magazine.

The article by an anonymous author appeared in the Horticulturist and Journal of Rural Art and Rural Taste in 1847. It is not likely that either the Green Thumb or I will be sued for plagiarism because of the error, but I think it desirable for you to set the record straight.

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September, 1954

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# The Green Thumb

Vol. 11

SEPTEMBER, 1954

No. 9

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*Picture on front cover of Narcissus by B. Korphage; on back cover of Hemerocallis, Nina Winegar by Philip G. Corliss.*

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## Drought and Your Trees

From The Shade Tree Digest by Swingle  
Tree Surgery Company

What the weather will be—hot or cold, wet or dry—during the remainder of the summer and early fall, no man can foretell. We can predict with certainty, however, that weather conditions will be reflected in the growth and general health of trees and shrubs. If there is abundant rainfall, ample sunlight and a minimum of hot, drying days, foliage will be lush and green and plants will continue to grow well into the autumn.

If, however, there is little precipitation and other conditions associated with drought prevail, all plant species will suffer. Inadequate moisture in the soil results in retarded absorption of nutrient minerals by the roots; less raw materials are carried to the leaves for food manu-

facture; less food means less growth and a general lowering of vitality. Lowered vitality often is the prelude to disease and insect attack.

It has been demonstrated repeatedly that systematic tree care can counteract most, if not all, of the adverse effects of prolonged drought. Artificial watering, a fall or spring application of fertilizer high in nitrogen content, and frequent examinations to find and check any disease infections or insect attacks that may develop, are measures that have proved their value.

## ROSE SOCIETY NEWS

September 9, 1954—Regular Meeting held in conjunction with the Annual Picnic of C. F. & H. A. at City Park Botanical Gardens—4:30 P.M. Bring your own suppers and go on conducted tours around gardens. Short business meeting follows.

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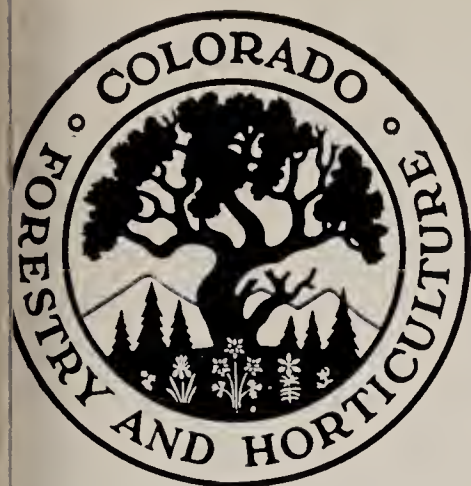
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 Secretary-Treasurer.....Spiro L. Nickolas  
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## Annual Picnic

All members and their friends will want to attend our annual picnic to be held just northwest of the museum in city park, beginning at 4:30 p.m. Thursday, Sept. 9.

Bring your own lunch. Girl Scouts will have hot and cold drinks for sale. There will be guided tours of the botanical gardens, including the Conservatory, Pinetum, Fernery and other plantings.

Come, meet others of congenial interests, see the collections in the botanical garden and enjoy your own good food out under the trees.

## NEW MEMBERSHIPS

July, 1954

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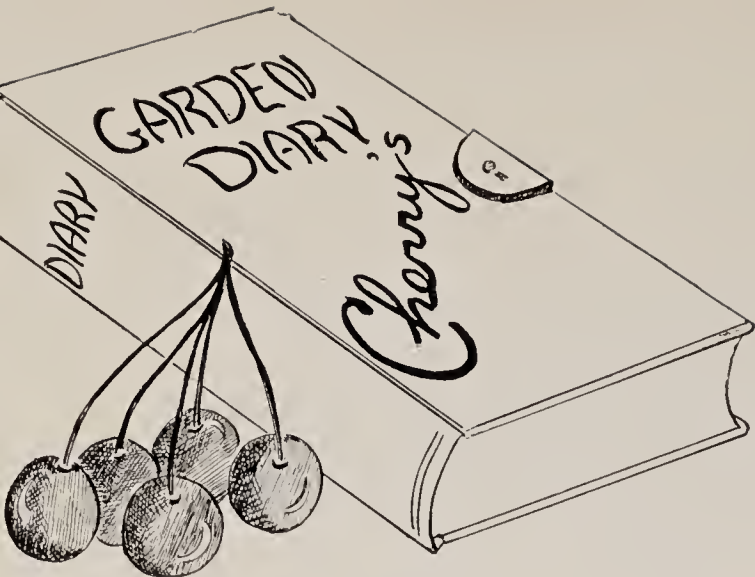
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## CHERRY LEARNS THAT A GARDENER'S WORK IS NEVER DONE

SEPTEMBER 4, 5 and 6. These three-day holidays don't come too often so Red and I decided to go fishing away back where the crowds did not go. We borrowed a Jeep station wagon and fixed it up to sleep in and left Friday evening for the high country. It made fair time on the highway and Saturday morning when we got off the pavement it really went places. We never got beyond the beer cans and kleenex, because where one jeep will go soon there will be a dozen. It really worries me that so many of the unspoiled places are now being messed up with unappreciative people whose only qualification for going into the wild places is the money to buy a jeep.

We had a little rain in the night but were comfortable. The next day we took our lunches and hiked over the hills to some tiny alpine lakes where the fish were big but wary. Red spent half his time untangling his line from the willows. Then a cold wind came up and we dropped down the outlet stream and I caught a few very small trout. I was noticing the plants that grew along the streams and wondered how many would grow at lower altitudes. I suppose that if we gave them as good soil and as much water that they should grow for us. I was also wondering how many of the familiar ornamental plants of Denver would grow in small towns at this same altitude. I'll ask Dad Dendron when I get home. Monday afternoon we were still back in the high country, reluctant to leave all the beauty and peace for the hot bustling city so it was late when we got home. We were too tired to more than unload the food, take a bath and roll into bed.

Sept. 11. It is amazing how the weeds grew after the few little rains we had, and missing last week-end's work in the garden put us back where we will have to work from daylight to dark to catch up. Dad Dendron came by and warned us to get every weed before it went to seed and reseeded all our garden. He was browsing around the garden and called our attention to hundreds of aphids on the leaves of our red dogwood (the shrub, not my husband). It seemed foolish to me for the aphids to be so active just before the leaves fell, but Dad explained that these were "alternate host" aphids and only lived on the dogwood bushes in early spring and late fall, and on other plants through the summer. He said that similar aphids were responsible for the early spring damage to Snowballs and Euonymus. He urged us to mix up some Black Leaf 40 with soap and spray them before they laid more eggs.

I noticed some ants running up my little juniper tree and asked Dad if they would hurt it. He showed me how the ants were showing the way to twigs fairly covered with aphids, the ant's "cows". We had decided that it was too late to watch for insects, but these were sure sucking the life out of those junipers.

Sept. 12. Mother phoned this morning and disturbed Red's late beautiful sleep. She came over later with her arms full of catalogs and pages of sketches.



showing all manner of color combinations to be worked out with tulip plantings. It would have taken thousands of bulbs and acres of land to get all the effects that she had worked out. Red about had a fit when he estimated what they would cost. It did serve to remind us that tulip planting time was about here and that we should have our bulbs ordered. We finally cut down Mother's plans to about 300 and decided to order them Monday morning. Mother was all excited about some of the little, early bulbs like Crocus and Snowdrop, so we ordered a few of them too.

It clouded up in the afternoon so I routed Red out of his hammock and got him busy seeding that last bare spot that we had got ready for lawn several weeks ago. Red was still treating the spots of poison ivy that he picked up on our outing, so I had to help him finish the final seeding and watering-in.

Sept. 18. The garden looked nice as I wandered over it soon after daylight this morning. (I think that early morning is the best time to look at a garden; everything is so fresh and new flowers may have opened in the night).

As I looked closer I did see some work to do. It looked as though most things were ripening up so I decided to clean up a little. I pulled out the annuals that were through blooming and cut the dead stalks from the early blooming perennials. The edge of the lawn by the shrub borders was a little ragged so I trimmed it up. Red finally missed me and came out to see when I was going to get his breakfast so I handed him the hedge shears and started him on the final haircut for our hedge.

After breakfast Mother came over and told of her neighbor also weeding her borders and threatening to throw away great clumps of Shasta Daisies and Iris. I rushed right over and she gave me about a car load of these perennials and a small start of about a dozen other perennials that did not multiply quite so fast. It will give us a good start. I learned the names of several new flowers and also what their cultural preferences were. From these ideas and all those that I got on the garden tours I am going to make my garden better next year.

Sept. 19. Today started out so nice that I just puttered around the house until late and then called up Mother and Dad Green and Red's folks and later picked them up and drove around the parks and parkways and around town, looking at the displays of color made by all the annuals and some of the late perennials like the Mums and tall asters. We stopped a few places and asked names of attractive plants but some did not know the names of the plants that they had growing in their gardens. I made quite a list anyhow of nice things that I'll try to get next spring.

We ate our lunch out in the park and came home in the afternoon and did a little dreaming and planning around the garden. Red became all excited about building a pool, and piping water to the top of our rock garden to make a waterfall. I tried to get him in the notion of building a pool deep and big enough so that I could swim in it, but I expect his enthusiasm and energy will run out long before he gets a shallow pool built.

Mother Dendron thought that our first improvement should be a small greenhouse attached to the house where we could keep our thumb green over winter, grow some nice house plants and start new plants for next spring.



She got out some old magazines and showed pictures of several quite inexpensive models.

When I can get Red to thinking that a thing is his idea he really gets all excited about it. Last spring he got all excited about growing our own sweet corn and spent most of the summer watering, feeding, and cultivating a patch. This evening we invited a few friends over to eat sweet corn fresh from the garden. They praised it so that I expect that Red will want to spade up the front lawn next year and plant corn.

Sept. 25. As usual, Saturday morning, Dad Dendron came over early and inspected the garden. He told me to go easy on watering and fertilizing any more this fall so as not to induce too rank a growth on the plants. He says that unripened wood is likely to kill with the first severe fall days. He suggested that I start raking up the leaves as they fall and start a compost heap behind the garage, but he thought that it was silly to try to keep everleaf off the lawn every day. I wanted to order some shrubs, evergreens and trees that we need to fill out our plans, but he went over the list and advised waiting until spring for many of the better plants. He advised taking the list to some local nurseryman and asking them which plants they would be willing to plant in fall and guarantee. He saw my neighbor cutting the top out of his spruce tree and warned him that he would spoil it unless he intended to make a formal trimmed effect with it. The neighbor came back with the question as to whether it was better to spray or dust his roses. I remember that Dad told him that it made little difference so long as it was done thoroughly and at the right time and with the right materials. I heard him advise the neighbor to have his shade trees checked before time for snow to be sure that there were no dangerous limbs or crotches that would be likely to be broken in a snow storm.

I guess they thought of those things because it was getting colder as it got later. The wind came up and we all came indoors and built a fire and popped corn.

Sept. 26. It was cold this morning and as we looked out to the neighbor's roof we could see that it had actually frosted.

I called Dad Dendron and he and Rhoda came over to see our garden. He got us busy digging the Gladiolus bulbs, the Dahlias, Cannas and Tuberous Begonias, for it was getting colder and looked like more frost tonight. They showed us how to pack each kind of bulb for the winter. Mother Dendron then bustled around repotting and carrying in the house plants that I had around under the shrubs. They had not been damaged by the last night's frost because of the protection of the shrubs, but she did not want to take chances on tonight. She hinted again how nice one of those little greenhouses would be.

I never noticed before how nice some of the fruits were on the Hawthorn, Viburnum, Barberry and Cotoneaster. I must order more next spring.

I have been watching all the kids carrying books and going to school. Guess I'll get some books too and learn more about good gardens.

---

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## WHAT IS A BOTANICAL GARDEN?

**I**T LOOKS more or less like a park; why not call it a park and be done with it? Well, primarily a botanical garden is a center of understanding of plants; its business is to interpret plants to the community. Notice that word, UNDERSTANDING; it is the key-word. Understanding springs not from the head alone, like knowledge, nor from the heart alone, like love. It is something more than both of these put together. An understanding of plants is an appreciation of them, a knowledge of their kinds, their likes and dislikes, their role in the history of mankind. It is a liking for them, a joy in their infinite variety, a realization of their effect on the human spirit. It is the primary job of the botanical garden to increase the understanding, to promote a love of plants, an interest in the local flora to serve as a center where like-minded people in the community can meet each other and work together with plants, to find out things about plants which were previously unknown, to function as an organized distribution center for those facts already known, to display plants so that their wonder and beauty and their usefulness will be brought to the attention of young and old, to be, in other words, a go-between for plants and people.

from Missouri Botanical Garden Bulletin.

The modern city dweller has largely lost contact with nature and in consequence has become notoriously rootless, restless and even irreligious. A botanical garden should consider it as one of its main aims to assist in every way it possibly can to: revive or to keep alive the city dweller's understanding and love of nature, in order that he may become a better citizen of nature's kingdom and there-

with also of his own community. This is a large order, and is evident that one botanical garden by itself cannot do it for a whole country. All it can hope to do is to exert a steady and slowly extending influence on the mentality of the people of the city in which it is located. This is why there should be hundreds of botanical gardens all over this great North American continent of ours instead of the dozen or so which actually exist. Even then botanical gardens cannot do it alone. They need the close cooperation of everyone who wants to help, especially of course of the schools and universities, the garden clubs and all horticultural organizations. However, the botanical gardens should be the leaven which starts the fermenting process by setting the example and by working continuously for the creation of overall good will through its emphasis on nature as one harmonious entity.

First of all our garden is a beautiful park, because "beauty as an incentive on the road to learning" is our watchword. Many people come to our garden originally mainly because it is the most beautiful park in the city. They come to enjoy and relax, but so much is offered to them—the plants are not only labelled but most labels also give information on the origin, usage, etc., of the plants—that their curiosity and interest are aroused, and they wander about learning something new with every step they take. This is, of course, our intention.

From a statement by Henry Teacher in American Horticultural Council Bulletin.

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July, 1954

Mrs. William Evans  
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Compiled by JAMES B. STEWART  
Drawings by PAULINE ROBERTS STEELE

### BEHOLD!

Behold congenial Autumn comes,  
The Sabbath of the Year!

—John Logan, Ode Written on a Visit to the Country in Autumn.

### TICKTACK

O, it sets my heart a clickin' like the tickin' of a clock,  
When the frost is on the punkin and the fodder's in the shock.

—James Whitcomb Riley—When the Frost is on the Punkin.







### CART-RUTS

Autumnal frosts enchant the pool,  
and make the cart-ruts beautiful.

—Stevenson,  
The House Beautiful.

### PRATIES

(Of unknown authorship)

Oh, the praties they are small—  
Over here, over here.

Oh, the praties they are small  
When we dig 'em in the fall,  
and we eat 'em, coats and all,  
Full of fear, full of fear.

—Irish Famine Song (1846-1847)

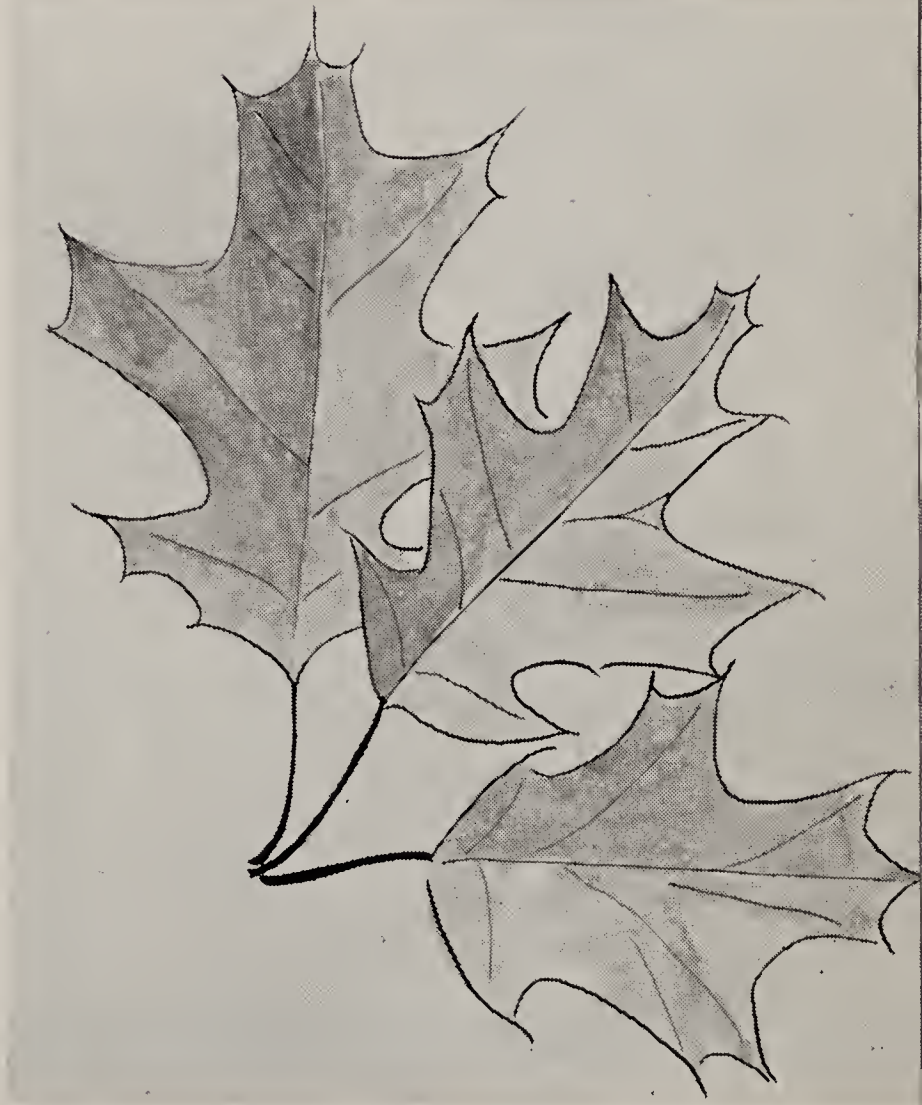
### SPUDS

(Of unknown authorship)

Oh, potatoes they grow small,  
In Kansas.

Oh, potatoes they grow small,  
or they plant them in the fall,  
and they eat 'em skins and all,  
In Kansas.

—Kansas version of famine song.



### TIME TO GO

They know the time to go!

The fairy clocks strike their inaudible hour  
In field and woodland, and each punctual flower  
Bows at the signal an obedient head  
And hastens to bed.

—Susan Coolidge—Time to Go.





### HORN OF AMALTHAEA

All-cheering Plenty, with her flowing horn,  
Led yellow Autumn, wreath'd with nodding corn.

—Burns—Brigs of Ayr.

### GOLDEN CORN

Heap high the farmer's wintry hoard!  
Heap high the golden corn!  
No richer gift has Autumn poured  
From out her lavish horn!  
Whittier—The Corn Song

### THE COLOR SCHEME

There is something in the autumn  
that is native to my blood—  
Touch of manner, hint of mood;  
And my heart is like a rhyme,  
With the yellow and the purple and  
the crimson keeping time.

—Bliss Carmen,  
A Vagabond Song.

### THE ASPENS

The mountains in the rain or snow  
Or shining in the sun,  
Give you a wondrous feeling  
That life has just begun  
The Aspens in the early spring  
Are such a tender green!  
And then in autumn up each gulch  
A glowing golden gleam  
Such shimmering shining fairy tree  
Amongst the Evergreen!

—Harriotte Stearns Stewart

### THE ENCHANTER

The tints of autumn—a mighty  
flower garden blossoming under the  
spell of the enchanter, Frost.

—Whittier, Patucket Falls

### CRIMSON AND GOLD

Glorious are the woods in their latest gold and crimson,  
Yet our full leaved willows are in their freshest green.  
Such a kindly autumn, so mercifully dealing  
With the growths of summer, I never yet have seen.

—Bryant—Third of November.

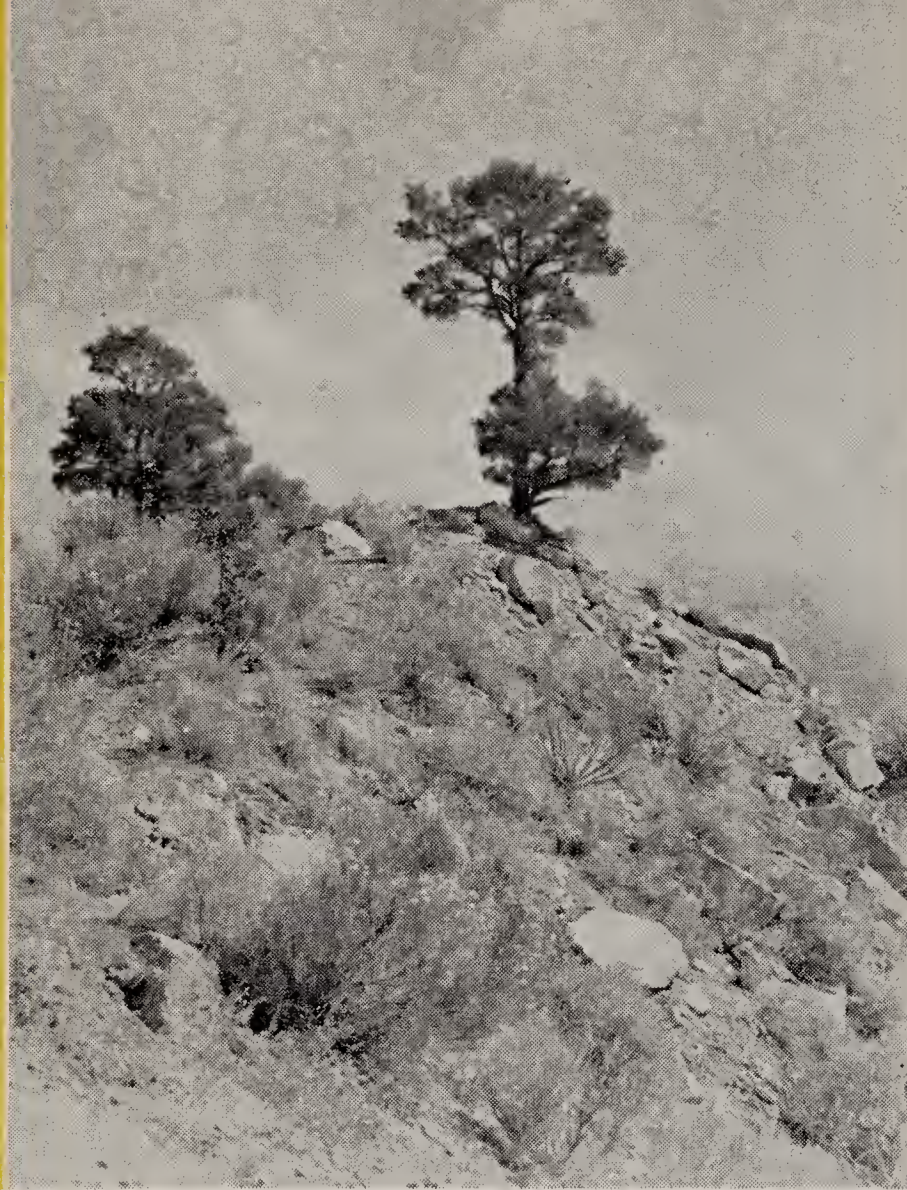
### MELANCHOLY?

The melancholy days have come, the saddest of the year,  
Of wailing winds, and naked woods, and meadows brown and sear.  
—Bryant—The Death of the Flowers.









## LURE OF THE ROAD

By D. M. ANDREWS

UP and down the state a garden panorama of rocks, scantily clothed with shrubs and still more scanty flowers, flank the winding and undulating roads of Colorado's foothills. To one particularly delightful spot, at the foot of Pikes Peak, some artistic soul conceived and applied the name, Garden of the Gods.

At times, particularly in early spring, flowers abound. Then it is that the leaves of the scrub oak are unfolding, just as the yellow catkins fade and fall, and the soft new growth of gray-green tinged with red is beautiful indeed, as it weaves a mantle over the gnarled trunks.

The freshness of new growth is

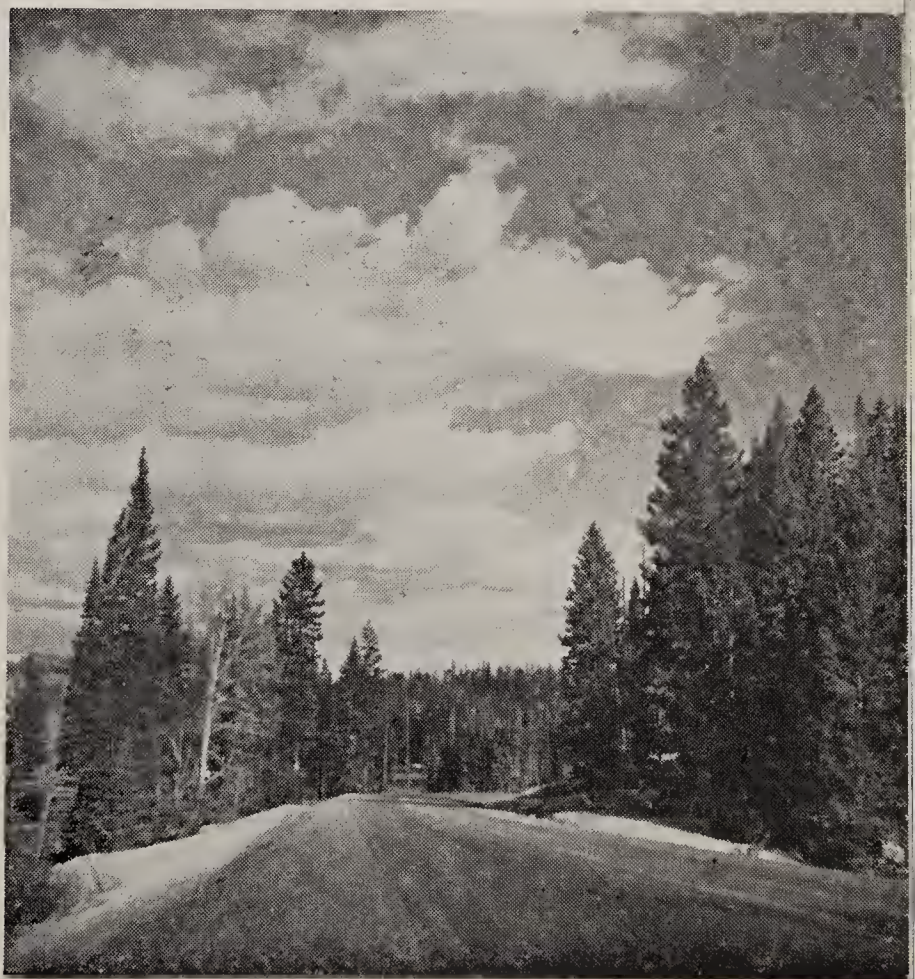






everywhere, and a fragrance of early flowers. It awakens the gypsy instinct, only partly dormant in any of us, and we cherish a brief day-dream of the pleasure of swift motion as a ribbon of road unwinds before us in swinging curves.

There is the fascination too, when winter sunshine and a dry road invite us again to read the pattern of the gypsy trail. And how different! The flowers are gone. Most of the shrubs are bare. Brown leaves cling to some of the clumps of oak. Oregon grape foliage is a rich blending of green, russet and red. Kinnikinnick festoons the steep slopes between rocks with cheerful green and colorful red berries. Brown seed-heads here and there and the tarnished fruits of rose and sumac are bleak reminders of the ebb of summer.





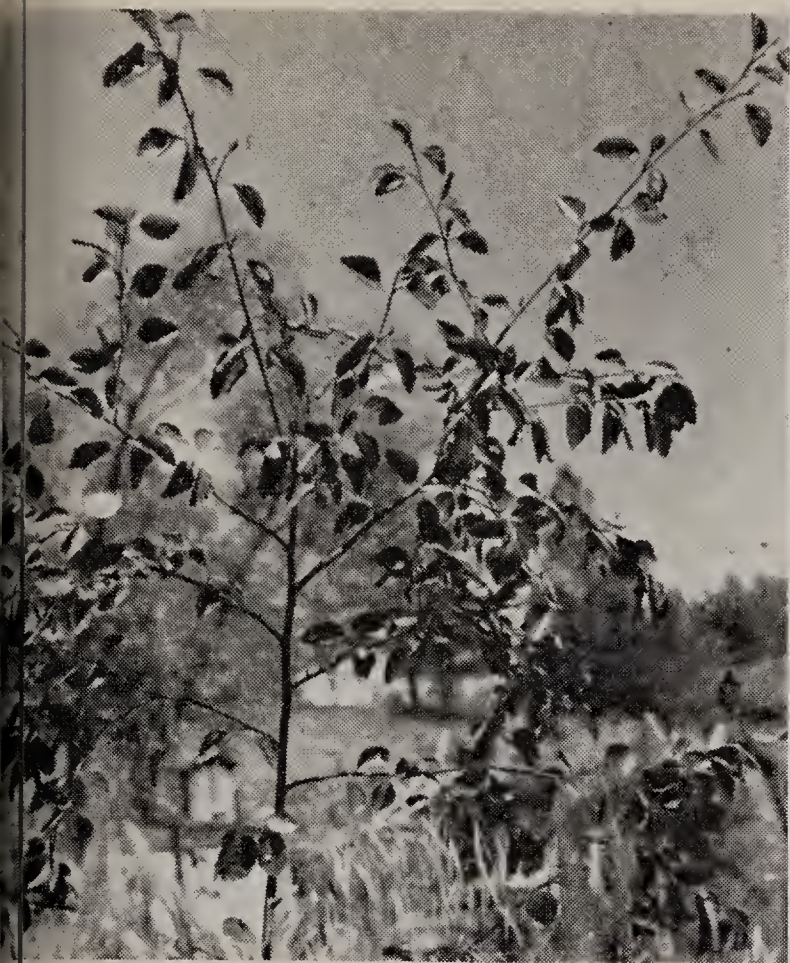


It is only at the winter season that bare trunks and branches reveal the true character of deciduous trees. The aspen of the higher foothills is clean and wholesome, yet commonplace. It claims a large constituency. Down the state and eastward along the Divide and far to the westward the scrub oak gathers its clans. Not too exclusive, it shares mesa and mountain slope with the cone-bearing populace. Yet clannish in the sense that a clump once started puts forth runners underground, and attains an immense spread. Its spread is very slow, ever outward, inexorable, and permits no invasion.

Both the aspen and the scrub oak have this chaparral instinct. The roots of the former ramify more widely and its colonies are more open. This subterranean spread in either case may be reckoned in yards or even acres in extent. The color of bark, foliage characters, autumn coloring and seasonal periods are identical for the colony.

There is an indefinable beauty to the chaparral of oak, to which the mystery of origin adds charm though its secret is no longer hidden. The oak is never commonplace, and his generation is the longest known to the foothills.

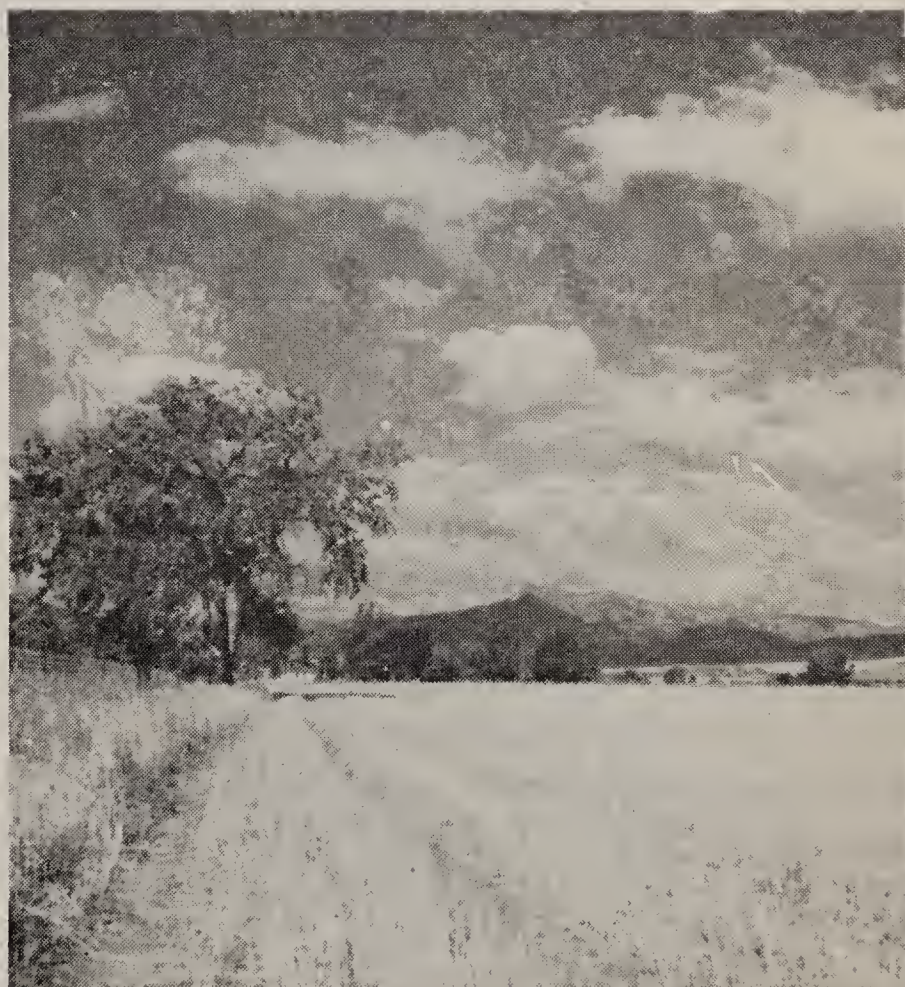




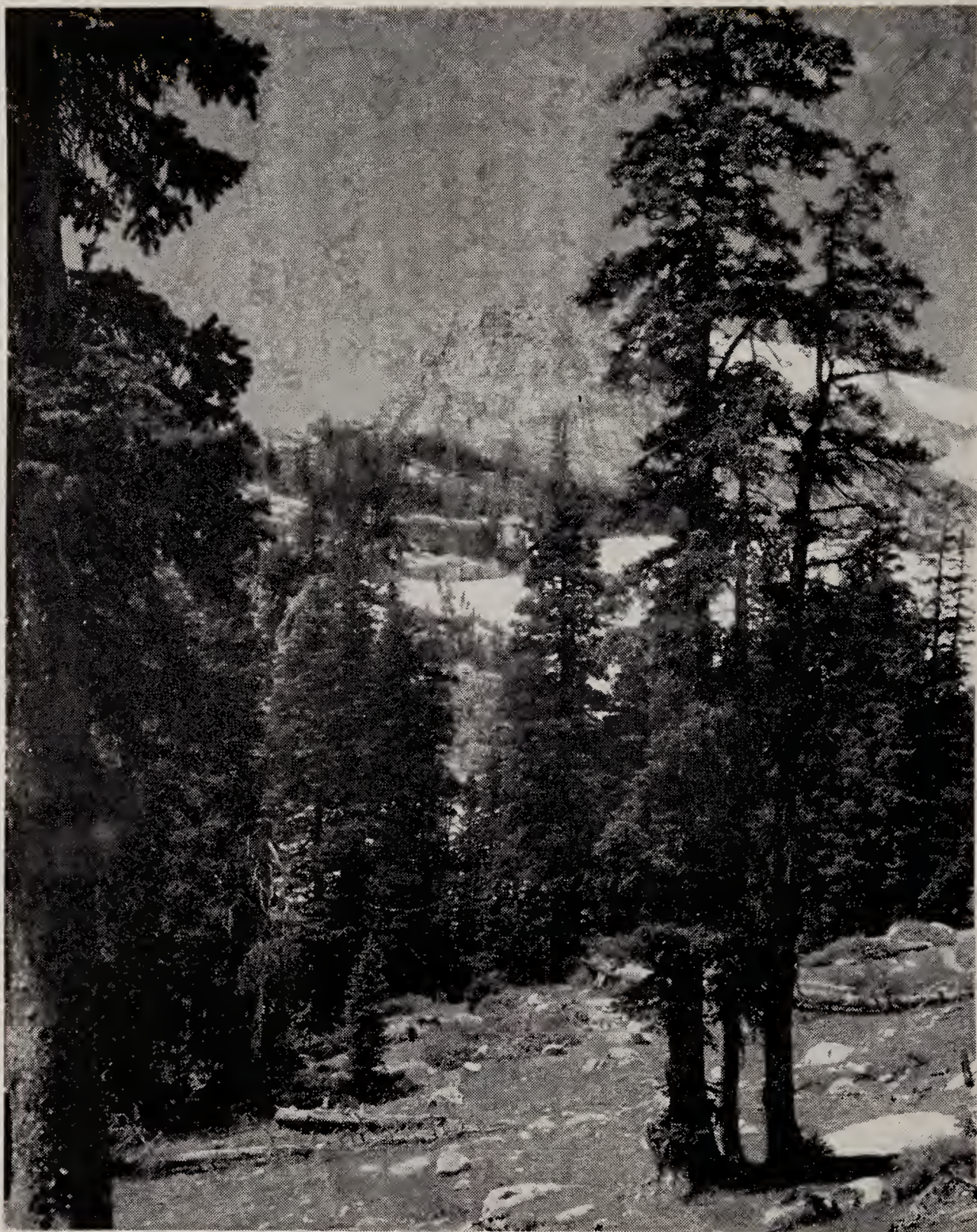
*Left, twig of the native shrub birch, right, the mountain alder with catkins in full bloom.*

In draw and canon grow the bush-maple, alder and river-birch, with twigs and bark of gray and brown, and these add a pleasant variety, yet but little more. Willows, even less tree-like, serve mainly to garnish meandering valleys with verdure in the summertime and with a lacework of twigs in winter, both intricate in design and brilliant in coloring.

Mediocre of attainment, though picturesque to a degree, the narrow-leaf cottonwood and balm-of-gilead break the monotony of open stretches of canon and high valley, while on the plains the broad-leaf cottonwood of flood-swept river courses renders a similar service.







But pine, spruce and fir play the leading roles in the drama of the forest. Their rare dignity of character, featured in their shaft-like trunks and symmetrical branching, is but modestly veiled in their clinging raiment of living green.

Nowhere within the forest is there such demarkation between youth, middle life and age as among the conifers. In the open places abounds the charm of slender spires,

eager of attainment. The deeper forest reveals the ripe beauty of towering columns, smooth of trunk and sound of heart, rich fulfillment of a worthy aim. Only here and there stands the patriarch of the forest, survivor of centuries, still obedient to the cycle of the seasons. Superbly majestic he stands, and while the shadows pale in the East he awaits the call of the sunset.



## **Pertinent Paragraphs From Policy Declarations on Natural Resources 1954**

Natural Resources Department, Chamber of Commerce of the United States, Washington, D. C.

### **Conservation of Natural Resources**

"The Chamber believes in the conservation of natural resources in the true sense of the word "conservation," that is, the use of natural resources with due regard for present public need, the rights of posterity, and the preservation of natural beauty. True conservation is the right and duty of every owner or user of natural resources and can best be accomplished by private initiative. (1954)"

"Forest and Range Administration—The Chamber regards as of primary importance the consolidation of the Forest Service and the forest and range functions of the Bureau of Land Management in a combined Forest and Range Service."

Forests, as a renewable resource, are vital to the economic, physical and spiritual security of the nation. Upon their effective protection and management hinges the future of much of our soil and water resources. Their products are essential for the operation of many industries, and for the continued prosperity of communities dependent upon those industries. The need for accelerated improvement in forest conditions is unquestioned."

### **National Parks and Monuments**

National parks should be spacious land and water areas essentially in their primeval natural condition

and in scenic quality and beauty so outstandingly superior to average examples of their several types as to make them of national importance and to make imperative their preservation intact and in their entirety for the enjoyment, education, and inspiration of all the people for all time.

"Beneficial Use of Water—In any reckoning of natural resources, the water and the land hold foremost place. The beneficial use of water has become a composite problem, for the solution of which individuals and the local, state, and federal governments may wisely expend funds upon carefully planned projects, provided they stand the test of financially sound investments after all benefits, costs, and damages have been fully weighed."

"Upstream Water Conservation—Water resource problems fall naturally into three categories—adequate water supply, surplus water, and quality or purity of water for various uses. Policies controlling public expenditures have long been focused upon these problems after the water has reached the larger streams. All future plans should lay greater emphasis upon farming practices and other land surface operations, to discover practical means of retarding run-off and increasing water penetration of the soil and consequent subsurface storage."

"Conservation of Resources—Ample fertile land is one of the primary basic needs for the future of the nation. Land, soil, and water resources should be conserved to protect our future strength and stability."





*Lemoine Bechtold and one son working among his hemerocallis. The closest that we could get to Lemoine to get his picture.*

## LEMOINE BECHTOLD AND HIS WORK WITH THE GENUS HEMEROCALLIS

By HELEN FOWLER

**T**ODAY is July 14. Yesterday I visited the daylily fields of Mr. Bechtold, which is about one acre in size, outside the walls, surrounding his beautiful home in the Cherry Hills district.

In 1922 he started crossing daylilies, using five of the few that were known at that time. He has been singularly successful in crossing and breeding and the improvement he has made seems almost magical. He undoubtedly has a remarkable power for picking the plants that would serve him best; he seems to know instinctively which would be the right parent for the type he requires. He has helped make the daylily as-



*The little greenhouse where experiments are carried on all winter.*

*The Bechtold residence.*



sume the position in the flower world that it should.

Among the hundreds of his hybrids are all shades and tints of yellow, cream, burnt-salmon, rusty-orange, and bright copper; there are also pale primrose and yellow with a suffusion of purple and the surprise of all is a real red. This red is an entirely new introduction in daylily coloring. There are also many with touches of brownish-red in the various segments.



Mr. Bechtold explained in detail just how these crosses are made; how the stamens of the half-developed flower to be used as a female are removed to prevent self-fertilization (stamens being the pollen-producing organs); how the flower is examined almost daily with a microscope until it is seen that the pistils have reached a receptive state, having a touch of mucous at their extremities; how the stamens from the bloom selected to act as the male parent are picked out with a pair of forceps and touched on the stigmas of the female so that the pollen is transferred and fertilization is affected. This work requires much more pa-



*He also grows a great variety of beautiful lilies.*

not as popular as the single type; they lack the simplicity and definite characters of the single flowers, but when you look at *H. fulva kwanso* you may not think so.

Many of Mr. Bechtold's hybrids are not named yet, although some have received prizes and silver cups. There can be no doubt, in selecting this particular genus to work on, a great deal of thought was given to the excellent qualities it possesses as a plant for the garden. It has no

*One of the extensive fields of hemerocallis which have been produced from crosses and are awaiting appraisal.*



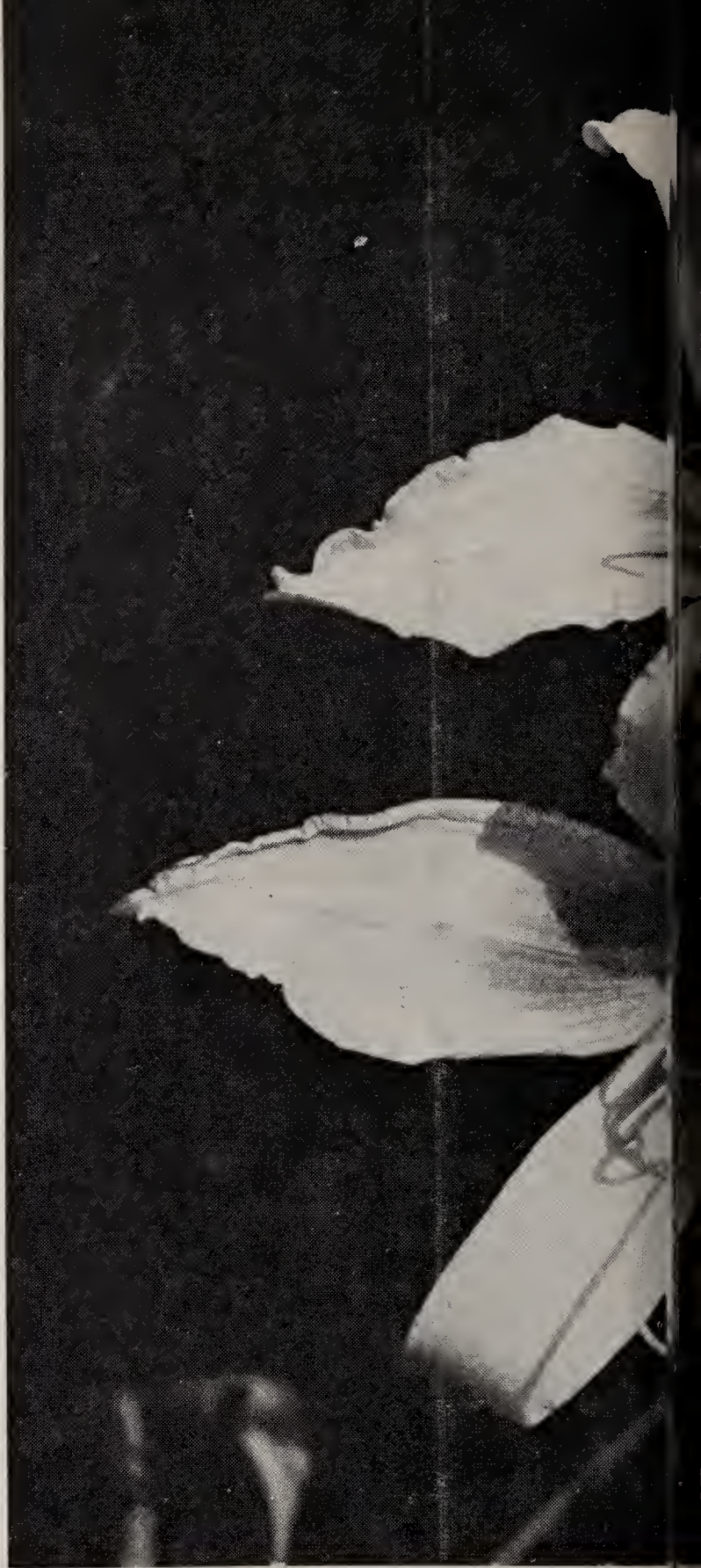
*Seed pod developing on an iris that has been hand pollinated.*

tience than study. The one method of reproducing its exact kind is, of course, by division of the roots.

These hybrids are in some cases larger than the originals; some are night-bloomers and some bloom longer than for a day. Today they are short-lived but there is a good succession. As a rule double forms are







*Hemerocallis of every color, day*







Fig.—Tags mark hand crosses.





enemies, not a single one; it will grow in any situation, shade, half-shade or sun, dry or moist soil; it can live and live well with but little care. In fact, daylilies have been found in old, neglected dooryards, uninhabited for years.

With the numerous kinds of daylilies from which to select, no doubt they will be added to many gardens. Mr. Bechtold told me of one garden where there is an interesting pool backed by large evergreens. To the east, north and west, with a sizeable

grass plot on all sides, is a perennial border. Daylilies will be planted here to form a background, with *Sedum album* on the margin. White Phlox might be planted here too, and the *subsessilis* variety of *Veronica*.

Should not the name of our story be "The truth about Mr. Bechtold," a man who for thirty-three years has had fun with his chosen hobby, with no little time given over to his business in Denver; a man who has taken a common wayside plant and turned it into a thing of conspicuous beauty.

## GARDENING WITH TULIPS

By EVELYN MILES JOHNSON

**E**ARLY spring gardens in Colorado are apt to be drab and colorless places unless gardeners make a special effort to provide early blossoms. Bloom can be expected from only a few perennials and none from annuals before Memorial Day. For April and May flowers then, we must depend on fall planted Dutch bulbs, especially the tulips. From tulips alone we can have a brilliant display of color for six or eight weeks beginning in early April.

In order to stretch the tulip season over several weeks we must choose our favorite varieties and colors from each of several classes or types listed in most catalogs.

To start the season we must plant some of the species tulips which are the earliest to bloom. These are shorter stemmed and smaller flowered than later types but very colorful and very welcome so early in the spring. KAUFMANNIANA, or the water lily tulip, opens wide in the sunshine but closes in the evening to show gay striped red and white cups. There are exciting new hybrids of this tulip but they are still expensive. Try Caesar Franck or the very

dwarf Gaiety. The LADY TULIP, CLUSIANA, sometimes called the candy stick tulip, is pink and white striped. It is fine for cutting. A little later and a little taller is PRAESTANS FUSILIER, which carries several brilliant red blossoms on a stem. Perhaps the best known species tulip is FOSTERIANA RED EMPEROR. This presents a large brilliant red saucer with a yellow center edged in black when fully opened. Don't miss this one if you want a gorgeous and striking flower.

To follow the species varieties you may wish to plant a few single and double earlies. These are of moderate height and can be had in many lovely colors. Follow these with the triumph and Mendel tulips to fill in the gap between the earlies and May flowering tulips. There are many fine ones to choose from—WEBER, a lovely white, edged pink and ELMUS, a brilliant red, nicely edged with white, are two favorites. PRES. VON HINDENBURG, a garnet red edged with lighter shadings is also very popular.

For the main tulip show in May the most important types are the



cottage, Darwin and breeder tulips. For all practical gardening purposes no distinction need be made between these three types. Cottage tulips have longer, more slender cups than the other two and there are no bronze or purple colors among them. Darwin and breeder tulips both have broad, heavy cups. The Darwins have all the tulip colors including bronze and purple. The breeders are usually dark colored—bronze, purple and dark bicolors. They all bloom about the same time and are comparable in size and height so mix and plant them as you like.

I shall mention some of the outstanding new varieties that have attracted the most attention in our garden. SMILING QUEEN is tops among the pinks. DEBORAH and WILLIAM TELL are also lovely. ADVANCE, bright cerise-red, makes a brilliant splash of color. ECLIPSE and CRIMSON GIANT are outstanding deep crimson varieties. DORRIE OVERALL, a lovely lavender tulip almost surpasses INSURPASSABLE, our favorite variety of that color. Deeper purples are DENVER, DEMETER or QUEEN OF NIGHT. Nothing could be lovelier than the pure white GLACIER or the ivory white IVORY GLORY. Among the pink-edged whites are NORTHERN QUEEN or QUEEN OF SPAIN which is more

cream colored. The sunny yellows include, SUNKIST, MRS. JOHN SCHEEPERS and the deeper colored GOLDEN MEASURE. DIXIE SUNSHINE is yellowish tan with lilac shadings. PRIDE OF HOLLAND is yellow with a red border. Among the breeder tulips are INDIAN CHIEF, a rich red-bronze, and LOUIS XIV, deep purple with bronze shadings.

The parrots and lily-flowered types are sports and variations of the other garden varieties. The parrots have lacinated and twisted petals which often have green markings. The flowers are huge and spectacular. FANTASY is the best known of the parrots. It is a huge rose-pink with green markings. BLUE PARROT, a bright blue-violet is stunning planted with SUNSHINE, a clear sunny yellow. FIREBIRD is brilliant red, and GADELON, a sensationally large flower of a blue-purple color. One of the newest novelties is THE BLACK PARROT, a deep black purple which well justifies the name.

The lily-flowered tulips are very popular for flower arrangements because of their long pointed petals and graceful stems. THE BRIDE is a lovely white variety. SPITFIRE, a handsome red, and MARIETTA, a lovely rose-pink, attracts much attention.

The late doubles are now called the Peony-flowered tulips. MT. TACOMA, a lovely white; UNCLE TOM, a dark maroon red; ROCKET, crimson red, and BLEU CELESTE, violet blue, are all good. AVONDAZON or EVENING SUN is a red and yellow novelty that is unusual.

Do plant bulbs from each of the tulip classes and enjoy a colorful garden for weeks while you are waiting for the later perennials and annuals.





## IT'S TULIP PLANTING TIME!

By HERB GUNDELL

**H**OME gardeners who appreciate the early colorful blooms of tulips, narcissus and crocus in spring have to make preparations for this spring awakening event within the next few weeks. Since there are more than a few different types of these fall planted bulbs it would be interesting to discuss some of the more important ones.

Without any question tulips are the queen of the spring flower garden. They are most hardy and will sustain considerable adverse spring weather without measureable damage. Probably the most favored of all tulips are the Giant May-flowering bulbs of which there are four different types. Mainly the Darwin, Cottage, Breeder and the Triumph. Most of these tulips range from about 24 to 32 inches in height and should be arranged by their expected height in mass plantings.

Tulips are magnificent flowers if they are planted in groups of a dozen or more for real effective color. They are not nearly as effective if planted singly hither and yonder throughout the garden. If your fall garden budget permits you to purchase only two or three dozen bulbs, plant them together for they appreciate each other's company. Of the above mentioned types of Giant May-Flowering tulips particularly good varieties are Advance, orange-salmon; Aristocrat, violet-rose; Bartigon, crimson; Campfire, bright red; City of Haarlem, scarlet with blue base; Gloria Swanson, a brilliant red; Golden Harvest, lemon yellow; Indian Chief, coppery-brown; La Tulipe Noire, blackest of the maroons; Mrs. John Sheepers, pure yellow; Orange Delight, orange-bronze; Pride of Haarlem, brilliant

red; Pride of Zwanenburg, dusty rose; and Reliance, violet blue.

When purchasing tulips it is important to investigate the catalog height of each flower. Other types of tulips that are very popular with many home gardeners are the parrots. A number of different colors are on the market and all of them are approximately the same height and a few shorter than the giant types listed above.

I should not forget to mention also the Botanical Tulips of which there are two very unusual ones highly recommended. Kaufmanniana is a variety which is rather short with large creamy flowers and last but not least, Red Emperor, probably one of the most unusual and most dazzling of all tulips available today. Red Emperor is only 14 inches tall but has very large flowers which open generally wide during the day and close up again in the evening. Planted in groups they should make one of the most attractive displays in any garden.

Other spring blooming bulbs which will provide a great deal of joy to home owners each year are crocus one of the earliest of spring flowers quite often long before the last snow fall. Grape hyacinths are another one of the many spring flowering bulbs which will give satisfaction for many years. Many people like to try their luck with hyacinths and in some years like 1953 they do very well. Hyacinths do not have a tendency to survive too long in our climate and those who love them plant them anew almost every year. They are an unusual flower and deserve a spot in your garden.

Another group of fall planted



bulbs that bloom in early spring are daffodils and narcissus. Breeders have introduced a great many new varieties of unusual shape and color. Many of these are certainly worth your while and will provide not only good color in your garden but cut flowers for your home.

One of the most important factors in the culture of tulips and other spring flowering bulbs is the fall planting. Although there is some difference of opinion among growers, it is generally conceded that tulips should be planted no less than 10 inches deep. Where they are not in full exposure to the sun during winter months, this planting depth should be increased depending on the length of exposure. In sandy soils it is also necessary to place the bulbs a few inches deeper than in loam or clay type soils. Hyacinths are not placed quite as deeply. A 5 to 6 inch depth of planting is generally quite satisfactory. Daffodils and narcissi are placed 6 to 8 inches deep depending somewhat on the size of the bulb. Crocus and grape hyacinths are planted 2 to 3 inches deep for best results in this area. In planting spring flowering bulbs it is essential to have adequate drainage. Quite often this drainage can be improved by adding coarse sand or fine gravel in the bottom of the hole before placing the bulbs. Tulips do not require an exceptionally rich soil and perform best in a good moderately fertile garden soil. In many winters when temperatures are quite warm during the day tulips will begin to come through the ground as early as January or February. You can make good use of your Christmas Evergreen boughs and branches from your tree by covering these early shoots and providing at least partial shade. This will slow down

the progress of the tulips at least temporarily.

And now one more sound suggestion. When you purchase tulips buy only the best and pay the premium for the large sizes of bulbs available anywhere. Your local seed houses and nurserymen have a reputation for carrying only the best of imported merchandise. They take pride in supplying only disease-free large size bulbs which will give you satisfaction next spring. Abstain from bargain offers. It is not generally known, but quite true that smaller size bulbs which can be bought at less than 2 cents apiece will not have an increase in size under local growing conditions. It is better to buy two dozen good large bulbs than one hundred (100) small ones. Small bulbs may grow satisfactorily in other parts of the United States where the growing season is longer. In our climate I have never seen them perform well. Even if it means a larger expenditure than you had anticipated buy only the best stock, preferably from local dealers. I would venture to guess that every person who purchases tulip bulbs shall be rewarded many times in enjoyment next spring. When your tulips bloom, you will have long forgotten what you paid for the bulbs this summer and tulip bulbs are good garden perennials which will give you satisfaction for many years.

If your older plants of tulips have not done well this last spring it would probably be very well to dig them this fall and replace them, eliminating the small bulbs and keeping only the large ones. Tulips have a tendency to creep up from their original planting, toward the top soil level and also divide when they are exposed to much heat.



## DAFFODIL GARDENING

By MELVIN W. JACKSON

**D**AFFODILS are lovely flowers for your early spring garden. Most seed dealers will offer only a dozen of the more popular daffodil varieties, but there are actually thousands of named varieties.

Most daffodils bloom about April 1 in the Denver area. I have had one variety, though, blooming out-of-doors without special care in January, and a succession of varieties blooming into June. When the blooms are buried temporarily under a blanket of snow, it is the gamble one takes in Colorado gardening. Hard frosts will not hurt daffodils.

Now is the time to plant your daffodil bulbs. The best time is as soon as they can be bought. September is good; August is not too early if the bulbs can be obtained then. Ordinarily they can't be bought before September, because the commercial growers don't have time to ripen, dig, grade, and ship any earlier.

If you see a fine bargain in bulbs in November, don't worry about early planting! Your bargain bulbs may not produce as fine blossoms, but they will grow and bloom nevertheless. The root growth begins when the bulbs are planted, though the first leaves don't appear above ground for several months. A good root system helps develop a good flower bud for the second spring after planting.

Do your daffodils die out in two or three years? It isn't the Colorado climate, because I've had some varieties increase a hundred fold in my garden. In most gardens the daffodils are planted at the edge of the lawn or mixed in with bushes and other flowers. They bloom in the Spring, but the bulb lies in the

ground all summer and is religiously watered and irrigated with the lawns and other flowers. Under these conditions the bulb may rot, and soon no bulb! Your bulbs want a dry spot in the summer. If they must be planted where you plan to irrigate all summer, the best practice is to dig the bulbs as soon as the foliage turns yellow (maybe June 15), dry the bulbs in a shady, ventilated place, and replant in the early Fall.

A lot of irrigation water isn't necessary. I've grown the bulbs in a dry, unirrigated open field in Colorado and had a nice crop of flowers and a good increase in bulb weight when dug the following summer. After the bulbs bloom, a good supply of soil moisture is desirable because it is only in the 6 weeks or 2 months between blooming and withering of the foliage that the bulb will increase in weight.

There are many arbitrary rules about depth of planting. Maybe they should be summed up as "deep, but not too deep." A depth two to three times the bulb diameter is a good rule. In Colorado eight inches isn't too deep for large bulbs. Shallow planting encourages early blooming with short stems, and the snow will get the early bloomers. Too deep planting retards blooming.

Nearly any kind of soil is suitable for planting; it should be fairly well drained. The appearance of the bulb depends greatly on the type of soil, but the flowers don't reflect this difference. You can plant a big flabby bulb, as big as your fist, imported from Holland, and after three or four years in Colorado, you may have several of golf-ball size and as firm as onions. Imported Dutch bulb



are grown in very sandy soil with the water table maybe 36 inches below ground, in a humid, wet winter and spring climate. Nothing in Colorado can match that climate and soil, but you can still grow fine daffodils here.

The date your bulbs bloom depends on other factors than the variety. One factor already mentioned is depth of planting. Another is the previous season's growth of the bulb. King Alfreds, for example, grown in Georgia, may bloom a month earlier when planted here than the same variety grown in Michigan when planted here. This happens because

the bulbs bloomed earlier and cured earlier the previous season in the warmer climate. Similarly the date of blooming of imported Dutch bulbs may be as much as several weeks different from similar bulbs of the same variety already growing in your garden. Another factor, if you dig and replant your bulbs, the replanted bulbs will bloom a week or more later than similar ones left in the ground from the previous year.

In buying bulbs, choose firm, hard bulbs. Soft or lightweight bulbs may be diseased, and should be destroyed, not planted. In the Spring, weak, twisted, distorted, or badly striped





leaves are also signs of disease, and the plant should be dug and destroyed immediately. Buying or keeping such bulbs is a good way to ruin other healthy ones. Gambling with poor bulbs is too risky to be profitable. Theoretically all imported bulbs are inspected, but enough bad ones come through for the buyer to be careful. The average sales clerk won't recognize the poor bulbs in a lot.

How much should you fertilize daffodils? The ground should be fertile to begin with, but applying fertilizer while the bulbs are in is of questionable value. Research studies give conflicting information. One fact seems certain; the nitrogen in fertilizers tends to increase bulb rot. Horse manure is the worst possible fertilizer. Bone meal is recommended, but it is so slow acting that one cannot see results. Using bone meal makes me wonder if I'm just using wishing powder on the ground.

Commercially the daffodil is a biennial plant; the bulb is better left in the ground for two years before replanting. A greater bulb production may be obtained though by annual digging. In a favorable spot in a garden, bulbs may be left undug for many years, though eventually

they overcrowd by dividing and qu blooming.

A Boulder neighbor dug a small patch of daffodil bulbs, from an original dozen she had planted several years earlier. She gave me about half of the bulbs; there were 350 bulbs in my share, weighing a total of seven ounces! I replanted them and none bloomed the first year, but they increased in weight to 5 pounds. The following year nearly all bloomed. Small, crowded bulbs when divided and replanted will usually put all of their energy into making much larger bulbs the first year; after that they will start blooming again.

When you plant new bulbs, do not expect your flowers to be as fine the second or third year as the first year. Your first year's flower was produced by the previous year's growth, under ideal commercial conditions. Your flower the second year is the product of your own garden and it takes about three years for a bulb to become acclimatized and start doing its best. In buying bulbs do not restrict yourself to one variety. Not all varieties will be acclimatized successfully, and you can eliminate the poorer types after a fair trial in your garden. Remember that originally the bulbs were bred for weather and soil conditions very foreign to Colorado.

In choosing your bulbs, you have trumpet varieties which resemble the old-style telephone, with infinite variations down to small cups and "eyes." Recent breeding has emphasized greater size, but very large sizes won't stand up under a late Colorado snow. Red cups are a recent development, but there are no all-red daffodils. The very latest in breeding are pink cups, but the pink color only shows up in the most favorable weather and planting conditions.





ditions. Most of the pink-cup varieties will open either yellow or white and gradually change to pink.

Double daffodils have all gradations of doubling, from two rows of petals to the appearance of a large rose. In my garden the stems of doubles break easily under capricious spring snows or strong winds, while smaller single daffodils will bend and then come upright again.

The poeticus varieties are all late-blooming, white petals, with small "eyes." Poeticus blossoms are very fragrant.

My favorites are bunch-flowered daffodils, the varieties with several small blossoms on one stem. I like them because only a few stems make a large, fragrant bouquet.

From seeds, daffodils take six or seven years to bloom the first time. This blossom will resemble the parents, but not exactly. This is why so many varieties have been developed. After the first blossom the bulb will divide and continue its annual blossoming indefinitely. In 30 years a single seed may produce 1,000,000 bulbs.

Commercial daffodil varieties have been bred from a handful of much smaller ancestors through several generations of hybrids. The original species are native of countries around the Mediterranean Sea. Fragrance has been partially lost in breeding, since improved varieties have been chosen largely for appearance rather than smell. In general the poeticus, poetaz, and true jonquil varieties retain the lovely fragrance of their ancestors.

After the drabness of cold, snowless winter days, it is a pleasure to watch the first leaves of daffodils breaking through the ground. As they grow, they may be buried and slowed by snow and frost, but will

be uninjured. The blossoms will be the first major flower to decorate your spring garden. They are easy to grow, yet study and care will pay rich dividends in beauty.

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## In Defense of the Sow Bug

Everybody runs down the sow bug with the axiom that "they eat young roots." While I have never made any scientific research, I have never caught the critters eating anything except rotting wood and leaves. Since we have plenty of those commodities, they are welcome to them.

Maybe it's the effect of a war-minded world but it seems to me we are reaching for the poison bottle pretty readily these days. No one can claim that the sow bug is particularly handsome but he might think the same of us and I am for letting him stay around until he is proven guilty of some greater offense. I think of our change in attitude toward lady bugs which we used to squash so enthusiastically because someone thought maybe they feasted on leaves and the earthworm that also was supposed to have young roots on its menu.

Grasshoppers and ants must be controlled when we don't have enough birds to take care of them. But as long as sow bugs can make a living on our place, they can keep this for their address until I am better advised.

Roy Lee.

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Mr. Johanu Gostic, Journalist from Germany, visited Horticulture House. He was on a 45-day tour of the United States, sponsored by the Institute of International Education. Mr. Johnson discussed with him national parks and national forests and the system under which they are handled in the United States.





*This illustrates roughly the types of growth that we find in chrysanthemum plant. The azaleums are low and almost hedge-like in their growth. In the next group we find the Spoons, Pompoms etc. In the tallest are the English 'mums, and the le hardy, greenhouse type. These last require more protection and staking.*

## CHRYSANTHEMUMS

By HARRACENA NEWMAN

LET'S note briefly, the history of the chrysanthemum. The first records date back to Confucius in 550 B.C. He was a horticulturist as well as a sage.

Korea has figured largely in our garden chrysanthemum in early times as well as today. 386 seeds were sent to Japan from Korea and from these, Japan listed blue, white, red, yellow and violet. We today have no blue chrysanthemums, but they featured blue in their art. Somewhere along the way the blues were lost.

In 910 A.D., Uda, Emperor of Japan, held the first recorded Chrysanthemum Show in his imperial garden in Tokyo. At that time the chrysanthemum was adopted as the national flower of Japan. From these Japanese chrysanthemums our double ones are descended.

In 1795 they were introduced into England from France and became a well established florists' flower by 1824. Some of these found their way into window boxes of the cottages and into well protected sheltered nooks. In 1836 a baker was successful in raising 500 plants from seeds—an amount unheard of up to that time. These he sold to florists.

In 1847 the first ones were brought to America. They were the small

pompon type and were called Artemisia at that time. Nothing was done to improve them until about twenty-five years ago. Elmer D. Smith did outstanding work in their development, especially in developing the large greenhouse varieties.

Alex Cummings again used the wild Korean chrysanthemum for the modern Korean Hybrids which have become so successful in our garden today. They are classified as follows: large double type, three inches or more in diameter; single type, they have new colors, new fragrance and better growing habits; duplex type more than two rows of petals but still show a center; pompoms, ranging in size from small buttons to large ball-like flowers. The American Chrysanthemum Society's classification is "Button type — not more than 1½" in diameter; Intermediate type — not less than 1½" to 3" Large type—not less than 3" to 4½", these are the disbudded pompoms." The Cushion type is not official, although we hear a great deal about it; the anemone type, one or more rows of flat rays with prominent disk centers; Cascade type just recently introduced, small or medium flowers which can be trained to hang down; spoon type, also new



has tubular petals with flat tips.

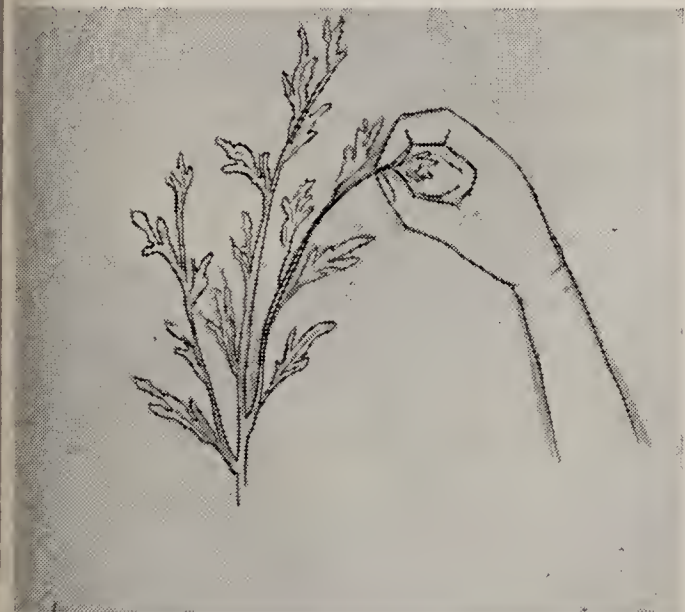
When possible, buy plants that have been treated with P 40 (a brand name disinfectant put out by Plant Products Corporation) as they will be practically free of leaf nematodes for one year; also it takes care of chrysanthemum midge and discourages the aphids.

Chrysanthemums should be planted where they will not be shaded over one third of the day. They should have good drainage and good garden soil. They are heavy feeders and like

barnyard manure, leaf mold or peat and fish emulsion.

The soil should have been prepared to the depth of 15"-18". The fertilizer, bone meal and peat or compost worked well into the soil. The plant should be firmed in and well-watered. I water with fish emulsion and have found it gives the young plants a good start. Spring planting is best for Colorado. Avoid old over-grown clumps in buying, the outer divisions are the strongest for the woody center cores is not good. Pot grown

1. Pinching back. 2. Golden Standard, an English 'mum. 3. Nepta, spider 'mum. 4. Garnet, spoon Chrysanthemum.





plants are best as the root system is stronger than in field divisions. In planting don't crowd your plants—leave at least 18" on all sides as they like fresh air.

It is advisable to pinch back the plants to make them more bushy; First—when they are six inches tall, then at about nine inches, and from then until about the middle of July. It is advisable to pinch back rather than cut back as one is inclined to cut too much; never cut back to the hard brittle wood.

You may use Bordeaux mixture for foliage diseases, Black Leaf 40 with soap for the sucking insects. The best time to use these sprays is early morning or late afternoon, never during the heat of the day.

Chrysanthemums need a great deal of cultivation and water at the right time, not too often but water well so that the roots have moisture from underneath. It doesn't hurt to fertilize once a month through August. If you mulch in the fall, be as careful as possible not to smother the crown as it will cause decay. Let the plants mature properly and get hardened by frost before covering.

The diseases of chrysanthemums are mildew, controlled by sulphur dust, triogen, soap spray in lukewarm water, potassium sulphide 1 oz. to 3 gallon of water; rust, same sprays as mildew—usually caused by overcrowding and poor drainage; leaf spot, controlled by Bordeaux mixture, fermete 1 lb. to 100 gal. of water—it also controls all foliage disease on chrysanthemums; leaf drop, caused by lack of underneath water,

soil too loose or too much fertilizer.

The pests are nematodes, a minute form of eelworms, aphids, chrysanthemum midge, thrip and red spider.

The new chrysanthemums are making our gardens more colorful from August until frost in the fall. If you don't want to plant your chrysanthemums in your borders, plant in rows back in the garden and move to the borders to fill in where needed. They can be moved in bud or even in full bloom if a ball of earth is taken with the plant and it is well watered in, especially with fish emulsion or some other aid for transplanting.

Had I known about all these diseases and pests before I started to grow a few chrysanthemums, I doubt if I would ever have tried one. For, as I read about them, I decided one would have to have a spray gun or dust gun or a can of fertilizer in his hand the whole time, to say nothing of the hose and hoe. I am glad I just planted them, and then did the reading long afterwards, as they are not hard to grow and will reward one and every passer-by with a great deal of pleasure. Try a low hedge of Autumn Light along the street or between the flowers and vegetable garden. It will give you a thrill never to be forgotten.



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## Beaver Engineering

There has always been an argument among naturalists as to how much reasoning a beaver does in cutting his aspen to make them fall where he wants them. The many examples of trees fallen into other trees and away from the water make one wonder.

Here is another interesting question, sent in, with the picture, by Allyn H. Tedmon of Littleton, Colo.



He writes, "This tree, cut half through, stood up against an 80-mile wind in Fort Collins in February or March. The wind came from the northwest and hit the side of the trunk still intact. The cut is on the southeast side.

Certainly it is interesting to watch the building and cutting of these original engineers and some of their dams which have impounded a great lot of water are effective constructions whether built by instinct or reasoning.

## Some Interesting Books

Recently added to the  
Helen Fowler Library

"How to Grow Beautiful House Plants," by T. H. Everett of the New York Botanical Garden. This is a popular priced and sized little book, full of good illustrations and good advice as to growing house plants. Whatever other house plant book you may have you should spend the 75c to own this book.

"The Secret of the Green Thumb," by Henry T. and Rebecca Nothorn. This book is neither a botany nor a gardener's handbook but it combines in an interesting way many features of both. It attempts to answer many of the questions as to how plants grow and why certain treatments are favorable to plant growth and others are not. A green thumb may be inherited by some, but if you do not naturally have one, here is a book to help you. After all, a green thumb is simply the ability to work with Nature in growing plants. Published by the Ronald Press Co., New York.

"Popular Gardening Ideas" is an interesting, well-illustrated little book published by the Arco Publishing Co. and selling for \$2.00. It is not a complete garden handbook, but just arranged to do what the title indicates, give Popular Gardening Ideas.

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## FROM HELEN FOWLER'S GARDEN NOTEBOOK

This, or similar questions have often come in:

*Question*—The day after I soak the perennial bed, it looks crusty and hard. What shall I do?

*Answer*—The day after a good soaking or a hard rain, it is well to go over the border with a long-handled mulcher, or a hoe, or where there is enough space between plants, even with a rake, to break up the hard soil produced by watering. This makes a mulch that will conserve the moisture and protect the roots from the hot sun. Slight waterings, done often keep the moisture at the top, then what?—the roots will grow upward to meet the water and what if you neglect to keep up the watering? The soil soon dries out and you have sick plant roots. Water well whenever you water.

Try *Dodecatheon media* and *Campanula carpatica* as companions.

The *Campanula carpatica* (bellflower) is dwarf and spreading so the *Dodecatheon media* (shooting star) may be planted between if placed eighteen inches apart. In the spring, when the shooting stars are up and in bloom, the foliage of the bellflower can hardly be seen, but during the summer it occupies all the space between them. The shooting star above ground turns brown after flowering and finally disappears to return again in the spring. *Mertensia virginica* and *Forsythia*

The Virginia bluebell is charming and should be in every garden, altho it has a habit similar to the shooting star. It finally leaves behind bare ground with a question of where to plant it. I often put it under large bushes of *Forsythia*. They bloom at

the same time and the pink buds and open blue bells of the *Mertensia* when seen thru the fleecy mass of the golden bells is a beautiful picture. You can always have *Forsythia* on hand. It is as easy to root as prairie vet and cuttings of the stems or uprooting the usual supply of suckers will always provide new plants. A *Mertensia* can be divided only with great difficulty it is best to raise new plants from seed which should be sown as soon as harvested.

To be really satisfying, the flower garden must have that air of permanence that is given it by perennial plants.

### You Can Turn a Scraggly Lawn Into a Rich Green Carpet by the Use of a Mobile Aerifier

(This note is taken from a page marked 1950. It is now four to five years later.)

Denver is known for its beautiful lawns but everybody living in Denver does not have a beautiful lawn.

Do you know the Mobile Aerifier? This is a tool to be used on sickly patches of lawn and looks like a lawnmower. It is fitted with a series of what are called spoons which break up the soil as they go through it. These spoons remove little plugs of soil, depositing them on the ground. This operation leaves the soil loose and open, promoting root growth. Experts say this also stimulates bacteria which are necessary to fertilize soil and good looking, healthy grass. Without oxygen bacteria smother and die, the grass grows thin and leaves it a prey to weeds. The old lawns of England are so good be



cause the English people do not live in their gardens and so, seldom walk on the grass. Here in America we use our lawns so much we pack them down and pound them to death.

This machine works over a 20-inch strip of lawn and a man can hardly keep up with it. The holes left in the lawn are  $\frac{1}{2}$  inch in diameter and are 4 inches deep, so fresh air, plant food and water can get right down into the soil. You can see that this promotes deep rooting. It can also stand drought better and the number of waterings are cut in two.

I have not inquired whether nurserymen in Denver rent these outfits, but a small one for home use is not expensive as it can be bought for five or six dollars; at any rate do not give up your lawn as hopeless until you have tried aerating it.

---

### A Little Trick With Chrysanthemums

If you have a special Chrysanthemum and you wish to propagate it, take hold of the side stem and bend it to the ground. Then cover it with soil, keep damp and in about three weeks you can separate from the parent plant and you will have a new Chrysanthemum. This group of plants likes a sunny position and not a too-heavy soil. Watch for nematodes — they thrive on dampness, sometimes traveling up a wet stem, causing a wilt and brown edges. Keep moisture right at roots, if this can be done with the present day method of caring for gardens.

---

### What a Special Expert Tells Me About African Violets

Letting side shoots develop interferes with blooming. These side shoots can be rooted in sand for new plants. Two pots are used when

rooting cuttings, the smaller placed inside the larger. Small pot is filled with water, so by seepage sand is kept moist.

Consistent watering grows better roots. Leaves that rub on rough edge of pots are often bruised, so cellophane is used to smooth rough edges. If leaves drop, mealy bugs may be the cause. Cold water dropped on leaves may cause spots; foliage should never be wet. Water at room temperature should be used; always brush leaves to remove dust. North and west light is best for the summer, east and south for winter. If possible temperature of 65° should be kept up during winter nights.

---

### Tools Should Be Kept Sharp to Avoid Plant Mutilation

You know the old answer to, "When should I prune my shrubs?" "When your knife is sharp." Do you have a grindstone? A really sharp spade is needed for so many jobs, like cutting roots without bruising. A grindstone is one of the best tools for producing the required cutting edges. Its usefulness really extends far beyond this limited purpose for there is no mowing, digging, or hoeing tool which will not benefit by its easy ministrations.

---

### Drainage and Lily Culture

One expert writes, "A few years ago I made two plantings of *L. candidum* at the same time from the same order of bulbs. One was in a well-drained spot in a perennial bed where full sun fell upon them all day. One dozen bulbs went into this planting. They were all gone by the third season, nor have I been able to determine the reason. The other planting was a small group of only three bulbs that went into the angle of a stone wall three feet high. This wall



runs along the south and west sides of the clump. I did not realize at the time that it was a poorly drained situation—continually damp, in fact especially in winter. My whole rock garden drains into this corner. Now, those three lilies have flourished like the proverbial bay tree. They have never been mulched in winter and the green growth is always at least six inches high. I know those lilies have wet feet the year around, yet that is contrary to all the rules. We are told by most authorities that with the exception of *L. canadense* and *L. supurbum*, lilies readily die where there is excess moisture. I would suggest that if your situation is ordinarily well drained you make no additional provision. If lilies thrive best in soils with high amounts of humus, it would seem that they demanded more moisture than ordinary flowers. H.F.

### Poison for Cutworms

Cutworms are a general garden pest, hiding near the plants and coming out at night to destroy them. They attack many vegetables and usually do their damage by chewing or eating off the stem of the plant above the ground line. It is common to go into the garden and find many vegetable and other plants eaten off with the stub sticking up and the top wilting on the ground. A little digging around in the soil near the plant will usually unearth a small greyish to blackish smooth worm.

The use of poison bait is an effective, cheap and practical method of controlling cutworms. Poison bait is very adaptable to use in our home gardens but it must be remembered that IT WILL POISON CHILDREN AND DOMESTIC ANIMALS, OR FOWLS, LIKE CHICKENS, if they have access to it.

The following formula makes good, effective bait:

Bran—5 lbs.

Paris Green—2 tbs.

Cheap Molasses— $\frac{1}{2}$  pint.

Water enough to make a loose moist mash.

Mix the dry ingredients together. Then moisten with the molasses and water solution. Allow the mash to stand for several hours. Then either broadcast thinly over the garden on a warm evening, a week before planting or put along the rows of plants at dusk. Cutworms take this bait in preference to plants. The addition of a finely chopped orange or banana oil for scent, makes the bait more attractive to the cutworms. H.F.

### Some of the Best Perennial Plants for Shady Positions

*Aconitum*, Monkshood

*Actaea*, Baneberry, both white and red

*Anemone*

*Convallaria*, Lily-of-the-Valley

*Dicentra*, Bleeding-Heart

Ferns

*Funkia*, Plantain Lily

*Hepatica*

*Thalictrum*, (not too much shade)

*Trillium*, Wake Robin

*Mertensia virginica*, Virginia bluebells

English *Primula*

*Anchusa myosotidiflora*

*Sedum*, some varieties

*Cypripedium*, Lady slipper

*Ajuga*

*Vinca minor* and *Vinca major*, Periwinkle or Myrtle

*Hemerocallis*, Daylily (prefers shade but will endure sun)

*Myosotis palustris*, Forget-me-not

*Sanguinaria canadensis*, Blood Root

*Ranunculus acris*, Buttercup

*Saxifraga cordifolia*

*Asperula odorata* (New mown hay)



*Trollius*, likes shade but will do well in sun if kept moist

*Aquilegia coerulea*, Rocky Mountain Columbine

*Epimedium macranthum*

*Geranium grandiflorum*, half shade or sun

*Lobelia cardinalis*, Cardinal Fir

*Plumbago larpentae*

*Aster Climax*, both blue and white

*Veronica*, the Speedwells are all good but *V. longifolia subsessilis* is by far the finest of the tall growers, reaching to 3 feet, and bearing long, slender spikes of deep blue flowers

### Reviving Spent Flowers

Chemicals have no value in reviving faded flowers. I have made many tests of the aspirin theory—No. Charcoal or so many drops of formalin in so much water—No. They will keep the water pure but that is all. Salt and sugar, valueless. Only one simple measure seems to bring back flowers that have wilted. I do not cut the stems under water as is always recommended. One day I was given a few roses, picked from the bushes as we walked to the car. They were placed on the seat with no wet paper, no wet cotton. When I arrived home, they seemed gone and most people would have thrown them in the ash can. The following is what I did. Put the kettle on the stove until the water was boiling, not warm but boiling hard. I poured this boiling water over the stem ends, increased the areas of absorption, plunged the roses in cold water, allowed them to stand two hours and they were fresh as when picked.

### WANTED

If you are cleaning out your flower beds and have Violets, Lily-of-the-Valley, Myrtle or Shasta Daisy to spare, I'll gladly come and get them.

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## ROADSIDE DEVELOPMENT

By ELINOR KINGERY

**E**VIDENTLY the time is ripe for the development of more roadside parking facilities in Colorado. The Colorado Forestry and Horticulture Association can help materially in the sensible and orderly establishment of such parks. The Roadside Development Committee was organized in the Association last November under the chairmanship of M. Walter Pesman. An outline of objectives for the treatment of highway borders was adopted by the Committee and printed in the February 1954, GREEN THUMB in an article by Clyde Learned.

The Committee has found its best chance of achievement is in working with the State Highway Department and the United States Bureau of Public Roads. Both these agencies have representatives on the Committee—Clyde Learned from the U.S. Bureau of Public Roads and Charles Shumate and William Walsh from the State Highway Department. All have shown great interest in the sug-

gestions of our Committee. Mr. Learned and Mr. Walsh have attended the Committee field trips. Mr. Learned has shown the Committee very fine examples of roadside parks established as an integral part of highway construction along the new Boulder Canon highway and the Squaw Pass-Echo Lake highway. The Federal government, says Mr. Learned, has long considered the laying out and equipment of such areas to be a legitimate and necessary part of highway construction through National Forests.

In places where the right of way is sufficient, excellent roadside picnic places have also been provided along State highways — near Denver there are good examples on the new Colorado Springs highway. There are now more than three hundred roadside parks along all state highway in Colorado. The State Highway Department shows great willingness to cooperate with our Committee. It is, however, hampered consider-

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*The roadside committee lunching at one of the roadside sites on the road to Echo Lake. These permanent tables and benches constructed by the U. S. Bureau of Public Roads.*

bly in putting in such parks by lack of funds both for buying sites and for maintenance, and by an interpretation of the law which might prevent acquiring extra land by the state for this purpose.

The Committee sent a letter to Mark Watrous, Chief of the Colorado Department of Highways, containing the following recommendations with regard to roadside parks:

1. That additional land be acquired now, along with land for the right of way, for roadside parks, since it

will cost much less before the highways are developed.

2. Inlet and outlet access roads.

3. Definitely outlined parking areas distinct from the picnic areas.

4. Roadside signs at some distance before the park.

5. Cleanliness, through adequate disposal cans, Highway Department maintenance, and public education. (The Highway Department, at all those campsites noted by the Committee, already does a very good job of policing and maintenance.)

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6. In the neighborhood of towns, solicitation of local help from civic-minded organizations — luncheon clubs, Boy Scouts, Garden Clubs, etc.

7. Adequate toilet facilities within the foreseeable future.

8. It is the considered opinion of the Committee that Roadside Development should be an intrinsic part of modern highway building.

Our Committee expects to continue its work in behalf of Roadside Development for Colorado and invites both members and non-members of the Colorado Forestry and Horticulture Association to join us. A number of our meetings have been picnics, held while inspecting established roadside development.

The next picnic meeting will be in September. Cars leave Horticulture House at 10 a.m. Call up and join us!

## WHY ARBORETUMS?

Re-building Germany considers an arboretum of prime importance: the city of Cologne has arranged for the creation of an arboretum within the

"green belt" that surrounds the city. Its purpose is to show people how trees grow and what trees are found in other countries throughout the temperate zones of the world. The municipal administration feels it has an obligation to the people in creating this living picture of tree growth.

If you want to help, send seeds of evergreens and deciduous trees to Dr. J. Straub, Director of the Botanical Gardens of the City of Cologne, 30 Amsterdamer Str. Cologne, Germany.

And, incidentally, wouldn't it be a logical step for our Botanical Garden to start seedlings of everything that will grow here? It is the most inexpensive way of getting the plants we want.

M.W.P.

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## A TREE IS PLANTED FOR USEFULNESS

*From National Tree News*

There are four general types of usefulness for trees planted on the home property. According to the National Arborist Association these are as follows:

1. A framing tree, planted to provide natural setting, thus improving the looks of the residence.

2. Shade tree, planted particularly for protection against summer heat. On hot days the temperature in the shade may be many degrees cooler than in the sun, depending on the heat of the sun. Differences in temperature have been measured from five to as much as forty degrees.

3. Ornamental trees, planted for beauty of form, leaf fruit, or flower. Edible fruits of course are extremely important reasons for certain trees.

4. For screening off undesirable views, reduction of traffic noises, trees are widely planted.

The location of framing trees to set off the house is important. Generally speaking trees or tree groups will look best near the corners of a home, at a 45-degree angle from either wall. At the west corners of the house, the trees will shade the home from the most direct rays of the sun against the house during hot, summer afternoons.

Ornamental trees are planted primarily for beauty. Their flowers and fruits add a distinctive look, making a fairyland of the home property during blossoming time.

With respect to shade trees, we might take a lesson from our pet animals. A dog, for instance, will seek out shady spots in summer and warm sunny spots in winter. Deciduous trees will provide comfort and coolness in the summer, but let the sun

shine through in winter. On the other hand coniferous evergreens can be planted as windbreaks against severe winter winds. An evergreen tree will serve as a windbreak for a distance of ten times its height. Thus a row of trees 40 feet high will moderate the wind up to 400 feet. The closer to the windbreak, however, the more the wind will be moderated. Tests by the U. S. Department of Agriculture have shown that a properly placed windbreak has saved as much as 22 per cent of the fuel needed to heat one house by comparison with another identical house without a windbreak.



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## The Hard Way

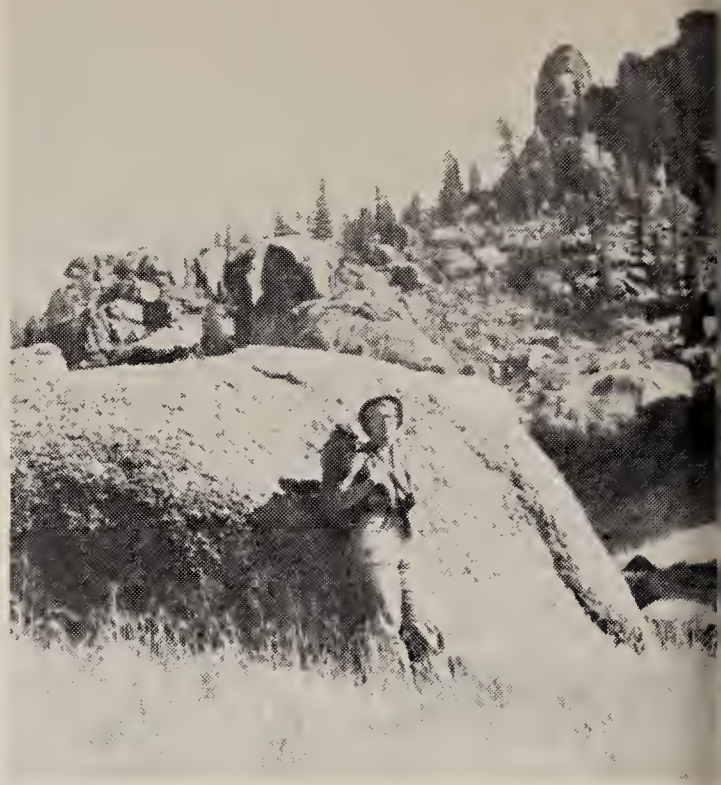
RANDALL HENDERSON  
From "Desert Magazine"

Recently I took my 7-year-old grandson on a camping trip into the mountains, and gave him his first lesson in the art of cooking flapjacks over an open fire. There will be many more lessons before he becomes a proficient camp cook—even in the making of hotcakes. For camp flapjacks require infinite patience and skill—and not the least of the problems is the maintaining of a proper fire beneath the frying pan.

Of course the modern way is to take along a Coleman stove—and then one doesn't have to worry about the fire. But I am going to teach my grandson to do his camp cooking the hard way—just as I am going to teach him to do many other things the hard way.

As a student of history, I am sometimes frightened by what I see going on around me—people using their high wages and big incomes to buy ease and luxury.

Almost without exception the civilizations of the past have fallen because their people grew too rich—and too soft. Sooner or later some



hard hungry race of men came along—and that was the end of another chapter in the story of man's climb up the ladder of evolution.

I have faith that the human species will climb that ladder eventually. But I am afraid we are not making much progress in this generation. We need the leadership of more men who have been taught to do things the hard way.



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# The Green Thumb

Vol II

OCTOBER, 1954

No. 10

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*Picture on front cover of the interesting little fountain-effect background in the garden of Mrs. John MacKenzie. Designed by Persis Owen.*

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BERTHA DURFEE .....	Assistant	BERTHA DURFEE .....	Assistant
MR. AND MRS. SPIRO L. NICKOLAS, Custodians			

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**THE COLORADO FORESTRY AND HORTICULTURE ASSOCIATION**  
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1355 Bannock Street

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Denver 4, Colorado

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TAbor 5-3410



## How Would You Vote?

HIGHLIGHTS OF A SURVEY IN 20  
STATES

### 246 Average Motorists

*Wide Rights-of-Way:* Even though reminded that it meant higher taxes, three out of four motorists wanted fairly wide or quite wide rights-of-way.

*Roadside Planting:* Five out of six motorists (83 percent) want their State to do a modest or a considerable amount of roadside planting.

*Roadside Scenic Turnouts and Rest Areas:* Five out of six (85 percent) considered a good or very good idea. Only three percent considered them a waste of taxpayers' money. 97 percent were familiar with them and 74 percent had used them.

*Protected Parking on Roadside Areas:* The top vote was for parking spaces physically separated from travel lanes. Second preference was for toilets. Third—picnic table and containers for rubbish. Fourth and fifth—benches and fireplaces tied for preference. Sixth—drinking water.

Taken from "The Complete Highway as the Public Wants It"—Eleventh Annual Conference on Roadside Development, Columbus, Ohio, April 3, 1952.

## Tall Dams and Soil Soup

By ELMER T. PETERSON

(Excerpt from THE LAND,  
Vol. XIII, No. 1)

"We urgently need a new concept of flood control. Up to now, what we call control is largely the manipulation of large volumes of water *after* they have become a rich soil soup, a cancerous casserole of the most vital substances that make for life and vigor. We make a colossal mistake if we do not realize that

the great harm a flood does is not to ravage a comparatively narrow downstream zone. The great harm a flood does is to wash out our topsoil on the watersheds.

The intense effort of bureaucrats, politicians and promoters to make people believe that flood prevention is synonymous with high dams and big reservoirs fails tragically to convey the full meaning of flood control. Actually, for all practical purposes, soil conservation and flood control are synonymous."

## New Director Appointed

R. G. Myer, 1707 Teller Street, Lakewood, active in the organization of three Men's Garden Clubs in Jefferson County has been elected as a director on the Board of the Colorado Forestry and Horticulture Association to take the place of the late Milton J. Keegan. We welcome Mr. Myer to the Board and especially to maintain close contact with the Men's Garden Clubs of this area. LeMoine Bechtold was elected Vice-President on the Executive Council in Milton J. Keegan's place.

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Colorado Forestry and Horticulture Association

Organized in 1884

*"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to make available correct information regarding forestry, horticultural practices and plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."*

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Secretary-Treasurer.....Spiro L. Nickolas  
Editor.....George W. Kelly

RESOLUTION

In the passing of Milton J. Keegan, our trustee and vice-president, on July 31, 1954, the Colorado Forestry and Horticulture Association has lost a staunch friend and a valuable worker whose good judgment and vision has helped this organization in many ways during the past ten years.

His keen intellect and his ability to analyze problems have been of great value in determining policies to be followed and in charting a program of work.

He was a conservationist, a gardener, a horticulturist and a researcher in practice as well as in theory, as attested by the intensive work he carried on with lilacs and gladioli. His many beautiful specimens of lilacs will perpetuate his memory for years to come as a part of the Arboretum of the Denver Botanical Garden in City Park. His knowledge of this flowering shrub will be of permanent record in the special lilac number of The Green Thumb magazine, issued on December, 1944.

In token of his untimely passing in the prime of life, the trustees of the Colorado Forestry and Horticulture Association express their deepest regret and spread these resolutions on the permanent records of the Association.

Be it further resolved that a copy of these resolutions be sent to Mrs.

Milton J. Keegan and daughter Margaret with the heartfelt sympathy of the trustees and members of this Association.

Be it further resolved that a memorial in the form of a volume on a horticultural subject be purchased, appropriately inscribed and placed in the Helen Fowler Library at Horticulture House.

Done this 19th day of August, 1954 at a meeting of the Executive Committee of the Colorado Forestry and Horticulture Association.

The Annual Picnic

This year the annual picnic of the Association September 9, was a three-part affair, with the Denver Rose Society and the Denver Botanical Gardens Foundation cooperating.

At 4:30 there was a formal dedication of the Botanical Garden with officials of the city of Denver and the Botanical Garden present.

Following the dedication there was a series of conducted tours of the existing plantings in the gardens. Then everyone got together under the trees northwest of the museum and ate a picnic lunch. Mrs. Doris Weith's Girl Scouts served coffee, pop and ice cream.

It was difficult to count those present because some only attended one part of the program, but altogether there were probably 200.





## FALL SHOULD BE A TIME OF SLOWING-UP, BOTH FOR PLANTS AND PEOPLE

Saturday, October 2

**W**E WENT over to the Aspencade at Steamboat Springs last Sunday. The Aspen were in wonderful fall color in the hills and the narrow-leaf Cottonwood were having a fall display of their own along the Yampa River. It was a beautiful drive over there and we thought that the idea was a wonderful one for a small community to promote. We must have many little towns in the state that have some particular beauty of Nature that they might share with others. We drove through Aspen earlier in the fall and admired the way that they are planting Sweet Peas and other bright flowers all over town. I guess that we in Colorado are just beginning to learn that we do not have to envy the displays of Flowering Dogwood, Azaleas or Cherries in other states, but that we might have a dozen or more displays over the state at different altitudes and seasons.

The air was chilly this morning and when Mother Dendron came over she immediately warned me that I could not expect frost-free weather much longer and that I should bring in the house plants that have been out under the shrubs all summer. She mixed up a lot of potting soil and helped me repot several of the larger things that looked as though they were becoming potbound. She told me that I should have cut back and repotted the Poinsettia and Hydrangea last spring when I put them out. By now, she said they would be bushy, nicely shaped plants. We finally filled the whole south window with a collection of plants that we hope will give some bloom this winter.

While we were "playing around" with the house plants Dad Dendron was fussing around to find some work that needed doing and work himself up a good sweat and appetite. These old retired farmers just seem to enjoy getting out and working hard. I thought that he smelled like a working man when he finally came in, but he seemed proud of that, rather than ashamed. He cleaned off the areas where I had grown sweet corn and spaded it up deep after putting on a lot of manure that the neighbors wanted to get rid of. The soil worked up nicely but looked as though it would benefit from the addition of more organic material.

I suggested that he burn the dried weeds and stalks that he cleaned off of this patch but he seemed horrified at the idea. He made me select a place off behind the garage where he could start a compost pile with all the waste plants. He watered the material down and threw on some old manure and soil to help it decompose and make needed fertilizer.

Sunday, October 3. It was raining a slow, cold rain this morning. I guess that it was the storm brewing that made us all feel so restless and full of energy yesterday. Dad says that a lowering of the barometer makes calves run, children noisy and coyotes howl. (Remember when we used to hear the coyotes howl before a storm? That was before the stockmen had the government poison all of them.)



Red spent all forenoon sleeping and reading the funnies, but in the afternoon, during a lull in the storm I got him out to clip a few long limbs off the Chinese Elms, that looked as though they might be broken off if the rain turned to snow and loaded them down. I puttered around clipping some overgrown shrubs and wrapping the trunks of the new little trees that we had planted this year.

It got dark soon so we came in early and I treated Red to a big bowl of popcorn. We heard that one of Disney's new Nature films was showing near, so we went to see it. It is nice to know that at least one of the big movie producers is willing to gamble on giving the public something other than gangster and leg shows. There must be many people left who appreciate really good pictures yet. I'll ask Dad sometime how in the world they get all those closeups of animal and bird life.

Saturday, October 9, and Sunday, October 10. The weatherman predicted good weather for this week-end so we took off early for the Four-corners country to get one more taste of the desert before winter. We really got a taste of the desert as we got down around Durango on some of the side roads and found that there had not been any rain for weeks. Fall and spring are the best times to visit the southwest desert, we found, for then it is neither too hot nor too cold. We had to hurry, and do some driving at night, but we did get back into the Navajo country and visited some of our friends both white and red. It is amazing how the Indians can support themselves on that apparently barren desert. It is also amazing how they can get along with so little, but they seem happy and maybe we would be better off with less junk to keep clean around the house. We ran onto some of the real artists who still make the wonderful turquoise jewelery. The art and craftsmanship that they show with only a few crude tools is remarkable.

We learned something about conservation of water when we drove through some Hopi villages. These peoples are supposed to be descendants of the ancient cliff dwellers and they still grow corn, beans, pumpkins and watermelons as their ancestors did. They have learned the importance of inducing the roots of all plants to go deep for their moisture, and of adding manure and organic matter to the soil to keep it permanently productive.

I talked Red out of a little change to pick up a few pieces of jewelery and a good Navajo rug. These things will remind us of the open unspoiled desert when we get too rushed and crowded in the city.

We got home in time to grab a few hours sleep, eat a sleepy breakfast and get Red off to the daily grind.

Saturday, October 16. The garden really looked like fall this morning as I made my weekly rounds. I could see many changes during the two weeks that we had not worked in it. Many of the woody plants were dropping their leaves and perennial tops were dead looking. I expect that most of the day should be spent cleaning up—trimming, edging, clipping, raking and pulling out. We should add a lot to the compost pile today!

Mother came racing in late in the morning with some sacks of tulips and narcissus bulbs that someone had given her. She had no place to put them so brought them to me. She threw some out on the ground among the perennials and then planted them with a long, slim shovel, where they lay. Others she planted in formal beds and in these she dug all the soil out for about ten inches, then loosened up the bottom, pressed the bulbs into the



soil in rows and replaced the soil. There was too much soil left and Red suggested that we dig a hole to bury it, but Dad said that the first good rain would settle it down.

Everything looked dry, but Dad Dendron suggested that we dig in and see if it was really dry underneath where the roots were. We did this and found that the soil underneath was in good shape. He warned us not to over-water or let the soil get too dry now. He said that we should always water thoroughly after things were dormant and before it freezes up for winter. I could not quite understand what he meant so he explained that dormancy of woody plants in the fall was indicated by the leaves falling. I still could not understand how he could tell when it would freeze up so he could water just before. I guess that some gardening has to be done by instinct or faith.

Red had been attending the Rose Society meetings and he was getting figgity about covering the roses for winter. They seemed to still be in full leaf, and he was afraid that cold weather would catch him with the roses not hilled up. Dad Dendron advised him to keep a pile of loose soil covered with leaves so that he could use it for putting around the roses in case the soil froze up before all the leaves dropped.

Sunday, October 17. It did not look inviting outdoors today so I got out all my seed and nursery catalogs and garden books and tried to study some of the plants that were shown that I had not grown as yet. I found so many things that puzzled me that I called Dad and asked him to come over. He advised me to outline a particular course of garden study this fall and winter. He suggested that I go down to Horticulture House and look over the books and magazines there and pick out some that would give me the particular things I wanted. Some of these I could borrow, but he thought that I should have some for my own for reference. Mother saw all the pretty pictures and suggested making a scrap book of all the perennials. It was fun working on it and I suspect that I learned more about these things than I will in any other way. I found plenty of pictures of the old familiar things like Shastas and Peonies but I saw many things mentioned that were not illustrated. I am going to try out a few new things every year after I get the base of my garden planted with the old reliables.

Saturday, October 23. Today was a lazy sort of day. I just wandered around enjoying the late mums, and the berries on the Viburnums and Barberry. After the Sunday papers were looked over I picked up one of the books that Dad had recommended I get from Horticulture House. I tried to read about the use of fertilizers. It all rather puzzled me but I came to the conclusion that in general our soil needed, first of all, organic material; then nitrogen and that phosphorus was only valuable when worked into the soil, and that potash was seldom needed at all in this country. This story also seemed to indicate that some concentrated form of nitrogen, like ammonium sulphate, was the most efficient and that it was more useful when applied in the spring when the plants started to grow. I think that I will give everything a good mulch of peat and sheep this fall and then a small shot of ammonium sulphate in spring when it looks as though it was needed.

As I wandered around the garden I noticed that the wheelbarrow was rusting from the last rain and that the shovels needed sharpening and cleaning. I'll try to get Red to fix up a place for everything along the garage



wall and get every garden tool cleaned up and repaired before it is put away. While putting the tools indoors I noticed that the garden furniture out by the barbecue was looking rather weather worn, so decided to bring it in and find a place in the basement where it could be stored until spring.

Sunday, October 24. The weather was still like fall so I checked over everything to see if it was ready for winter. I found that I had missed wrapping some of the new tree trunks so fixed them up and rigged up a shade to the southwest of the little Arborvitae that Mother insisted that I plant. Now I hope that we are ready for winter when it comes.

I looked over the perennial border and found that I had already almost forgotten what was planted where. I went right in and got a note book and wrote down all the suggestions that I could think of for improvements for next year—the things that should be moved, those that should be thinned the vacancies to fill and the failures to throw away.

I called Dad and asked him what kind of a label he had had good luck with so that I could get some and mark the things on the ground. When I planted them I did not think that I would ever forget where they were, but I sure am puzzled about a few now.

Saturday, October 30. I couldn't find any garden work that really needed doing today and I suddenly realized that I had been so tied down with the garden all summer that I had almost forgotten all my old friends. It is a lot of work getting a new place fixed up but I can't neglect all my old friends forever. I'm going to get Red out and dressed up and have him drive me around to see other people and other gardens instead of always expecting them to come to me. I may even learn something from other people and their gardens.

Sunday, October 31. It was rather nice to get out among people again yesterday, and we were up rather late last night, but I am going to rout Red out again this morning and go to church. I have gotten much of my feeling of closeness to Nature and God from my garden all summer, but maybe I am missing something, at that, that I can get from the church. At least I can study the other women's hats if the preacher gets too vague and impractical in his sermon. We certainly need the influence of more churches and gardens to balance the influences of the movies and television that only seem to emphasize the bad things.

---

### **There Are a Few Points About Peonies Gardeners Should Know**

One, when to cut back after blooming. When foliage turns brown in the late year cut back to the ground. In choosing peonies they should have at least 4 budding eyes which should be set 2 inches below the surface. If planted in the fall peonies should be mulched, if in the spring keep thoroughly moist. Pay no attention to ants crawling on buds; they are only after nectar.

And then there was the Colorado visitor from the damp Atlantic Coast, very used to fighting mildew, who was visiting at a cabin near here. The cabin owner discovered some beautiful rocks while she and the guest were out hiking, and was practically petting them and wishing she could get them to Denver for a rock garden. The guest looked at the beautiful lichen on the rocks and said, "Why you wouldn't want these, they are all moldy."





*Photo from the Bulb Growers of Holland.*



# MAGIC CARPET

By FRAN DUTY

"Daffodils,  
That come before the swallow dares,  
and take  
The winds of March with beauty."  
—Shakespeare.

**I**F you are a "lazy" gardener, the dancing daffodils are indispensable for your garden. These graceful, long blooming spring charmers are the easiest of all bulbs to grow. They will bloom many springtimes with little care and need not be moved until the blooms start decreasing in size and flower sparsely, usually after three or four seasons.

These are among the world's oldest cultivated flowers. Natives of the eastern hemisphere, they have spread with civilization to the four corners of the earth. The many flowering types of this entrancing child of the Amaryllis family are all worthy of the gardener's attention. A misconception persists which should be dispersed; all daffodils ARE narcissus and all narcissus ARE daffodils. Linnaeus named them after the youth in Greek mythology who was transformed into a flower by the goddess Nemesis.

The central part of each flower is a cup-shaped crown, or corona. The outer circle part, called the perianth, consists of three petals and three sepals. The yellow daffodil, *N. pseudo-narcissus*, which we call Lent Lily, is characterized by a deep trumpet and the corona is as long as the perianth. Butter-and-eggs, *N. incomparabilis*, has an orange-red cup about one third as long as the sulfur-yellow perianth. *N. poeticus*, pheasant's eye, has pure white petals with plenty of substance and an attractive shallow, reddish crown. The variety *Actaea* almost invariably wins in its class at flower shows.

The polyanthus, *N. tazetta*, has

small or yellow flowers, borne in umbels, and having short coronas with a yellow corolla. This is the species immortalized by the ancient Greek and Roman poets. The fragrant paper-white narcissus most commonly grown indoors is a variety of polyanthus. Ganymede's Cup, *N. triandrus*, has long, drooping, pure white flowers, sometimes numbering nine to a cluster.

Daffodils succeed where other flowers fail for lack of sunshine. Plant the bulbs five to six inches deep, as separate or as close as you like, before frost hardens the ground, so that the roots may become established before the ground freezes. Be certain all air space is excluded from below the base of the bulb. It is important to keep the ground fairly damp while this rooting process is taking place. After the first hard freeze, cover your planting with a light mulch of leaves, but be sure to remove it early in March, so the new foliage can develop strongly.

There are hundreds of varieties, but those mentioned here will give you a profusion of bloom over a period of four to six weeks.

You will enjoy the most beautiful Spring you have ever had!

---

The Iris is one of the most beautiful forms in the flower world and it will flourish in practically any moderately good soil.

---

Peonies have the advantages of few enemies, a long and vigorous life, beauty, and in many varieties, fragrance.

---

One of the brightest stars in the garden in the late fall is the Japanese Anemone.





*Photo from the Bulb Growers of Holland. Loaned by Fran Duty.*

## SPRING IN WINTER

By RUTH ASHTON NELSON

Now is the time to act if, come next January, you'd like to see your windows filled with daffodil and hyacinth blossoms. It's easy if you have a cold, dark ventilated closet at your disposal. Of course, an old-fashioned cellar fruit room is ideal. The temperature here should not go below freezing nor above 50°. An average in the low forties is good.

There is still time to order bulbs for this purpose if you act quickly. I prefer the smaller types for potting. Two varieties of yellow trumpet daffodils which have been very satisfactory for me are February Gold and March Sunshine. For hyacinths I order the small sized bulbs offered for

bedding, in a white variety and they have given me wonderful results. The flower spikes from these small bulbs are a little less dense and stiff than those from top size bulbs and seem to me very charming. Last year I had one pot of three bulbs of a blue Fairy Hyacinth called Borah, a lovely thing which produced numerous loosely flowered stems and was a joy for about two weeks. The bulbs of this are large and each gives several flower spikes.

The broad shallow pots called bulb pans or azalea pots are most satisfactory for these bulbs. Crock them well, then fill about one third with a sandy potting mixture containing



plenty of peat. Fit as many bulbs into each pot as you can and pack the mixture around them tightly so there are no air spaces; soak thoroly by setting in a pan of water overnight. Then place in saucers or shallow pans containing drainage material such as sand, gravel or vermiculite in the dark closet. Give water occasionally to keep moist but guard against soginess.

Bulbs put in about the middle of November should be ready to bring out about the middle of January or sooner depending on conditions, especially temperature. When the shoots are about three inches tall the plants are ready to bring into the light. The season may be increased by bringing out some earlier and some later but my experience is, if allowed to grow over five inches in height in the dark the stems will be weak. Some could be started sooner for earlier blooming.

Nothing gives me more joy in wintry weather than a pot of daffodils on the window sill.

---

## COLORS IN ROSE BLOOMS SATISFY

From Planting News, American Association of Nurserymen

There probably is a wider range of colors and shades in the rose than in the blooms of any other plant, according to the American Association of Nurserymen. Starting with white, roses may be snow white and cream, or ivory. In the reds, there is practically every shade from the most delicate pink to scarlet, and on to the deepest red. There is orange in various shades, as well as yellow ranging from the pale primrose to deep, golden yellow. There are bicolors such as pink and yellow, yellow and red, and many others.

A collection of colors in roses can



*Photo by Ruth Nelson.*

make a fascinating hobby that supplies the home with beautiful blooms of wide variety. Roses are easy to grow and supply a richly satisfying harvest of flowers. While the collection of colors may be in a single garden, it also can be spread out, with individual colors and various forms of the plants used in many places on the home property, in the foundation planting, along walks and as accent plants.

One may limit his selections to a single type of rose plant and select colors from this, such as climbing roses, which have many colors, as do the hybrid teas and the floribundas with their cluster of flowers. Miniature roses likewise can make a delightful collection of considerable interest.

There are many thousands of amateur rose fanciers and collectors located in various parts of the country. Many have made the growing of roses a lifetime hobby, just as, on the scientific side, famous hybridizers have devoted their whole lives to the development of the rose plant, creating new blooms of startling form and beauty.







## THE DESERT GARDEN

By D. M. ANDREWS

The desert garden may include the hardier Cacti, Yuccas, and several flowering herbaceous plants and shrubs belonging to the same general assemblage. If the reader should hold a prejudice against cacti or against flowering plants, which is less likely, there remain lovely foliage effects in many tones of green and silver which require only the few precautionary measures about to be explained.

If the absence of moisture was in effect the key solution to success with desert plants than I know most of my readers would have their worst fears confirmed, there remaining only to be said, "But we live in a wet part of the country."

Since the discovery of relativity the successful culture of desert plants in any unshaded back yard may not be questioned. My own observations confirm the statement sometimes made, that in the semi-arid Colorado environment more native cacti perish from too little moisture rather than from too much. The dead skeletons from drought are numerous following a very dry season. The essential first step in preparation is to provide a deep soil with thorough drainage. An elevated bed, a steep slope or the top of a terrace will suggest a possible choice. It is the habit of desert plants to root deeply, so that a foot of prepared soil is none too much for certain success. This depth should have a complete drainage outlet. The soil need not vary essentially from that recommended for alpine, the coarser texture, mainly gravel, being preferred. Added to the gravel should be  $\frac{1}{3}$  bulk of sand and humus, the gravel composing  $\frac{2}{3}$  of the mixture. With such a soil com-

position artificial watering of recently set plants will do no harm, nor watering in very dry weather if the need should be evident. But here a word of caution against irrigation too late in the season. Autumn rains have been known to upset the routine of



*Penstemon*





*Gilia pungens.*

nature, causing yuccas to produce a second crop of bloom in the fall. This need cause no alarm, but cacti must go through the stages of maturity beginning with late summer, indicated by a shrinking of the tissues so that by September or October the actual bulk of the plant is reduced about 1/3. Occasional rains should not effect this process materially. It results in a thickening of the sap of the plant, leaving the plant cells only partly filled and insuring winter hardiness to almost any required degree.

Plants other than cacti are less exacting in this maturity phase but the principle applies in a measure. The relativity precaution works in this manner; it disperses excessive amounts of moisture, and the gardener must then use his judgment as to the timing and amount of additional applications.



*Hunger Cactus, Opuntia polyacantha.*



This, however, is not quite the complete picture. Desert plants resent overfeeding to about the same degree as they would from too much moisture. Excess in both directions is quite sure to result in a weak floppy growth that is far from pleasing, and detrimental to a freedom of bloom.

In a rainy climate the availability of nitrogen and phosphate may be regulated by the degree of soil alkalinity. The addition of ground limestone, not quick lime, to the desert garden to eventually effect a PH reading of  $7\frac{1}{2}$  or 8 will curtail the danger of excess moisture very materially and help establish a proper leanness of soil elements which is almost as vital to success. Be reminded that artificial soil conditions are subject to change and that occasional check tests should be made.

*Devil's Claw Cactus, Echinocactus whipplei*



*Miner's Candle. Krynitzkia*





*Trailing Phlox*

*Prickly Pear, Opuntia humifusa*

### Plants for the Desert Garden

Cacti—all species  
 Yuccas—all species  
 Phlox bryoides, Hoodii  
 Oenothera—several species  
 Krynitzkia (Miner's candle)  
 Artemisia (Sage)  
 Tanacetum  
 Gilia pungens  
 Mirabilis (4 o'clock)  
 Pentstemon—several  
 Menodora  
 Chrysanthemum plattensis, etc.

---

*Campanula persicifolia*, the peach-leaf bellflower is one of the good varieties in the bellflower family.

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There are interesting combinations of flowers, not only for succession of bloom but for simultaneous bloom as Canterbury Bells (*Campanula medium*) and Foxglove (*Digitalis*).

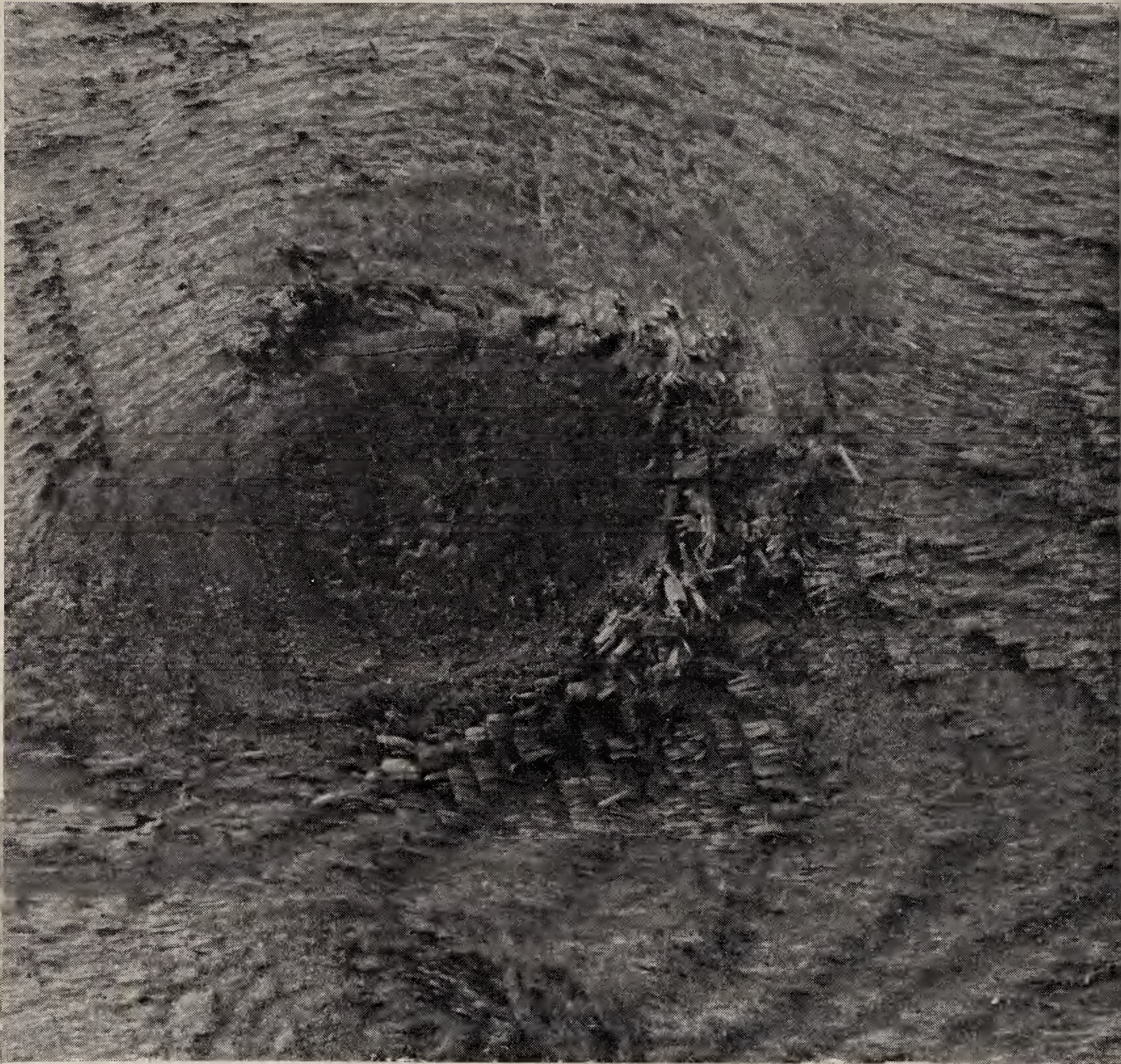






*Evening Primrose, Oenothera*





## LIVING PINE OR BROAD BOARDS

POET OR LUMBERMAN?

STRANGE that so few ever came to the woods to see how the pine lives and grows and spires, lifting its evergreen arms to the light — to see its perfect success; but most are content to behold it in the shape of many broad boards brought to market, and deem *that* its true success. But the pine is no more lumber than man is . . .

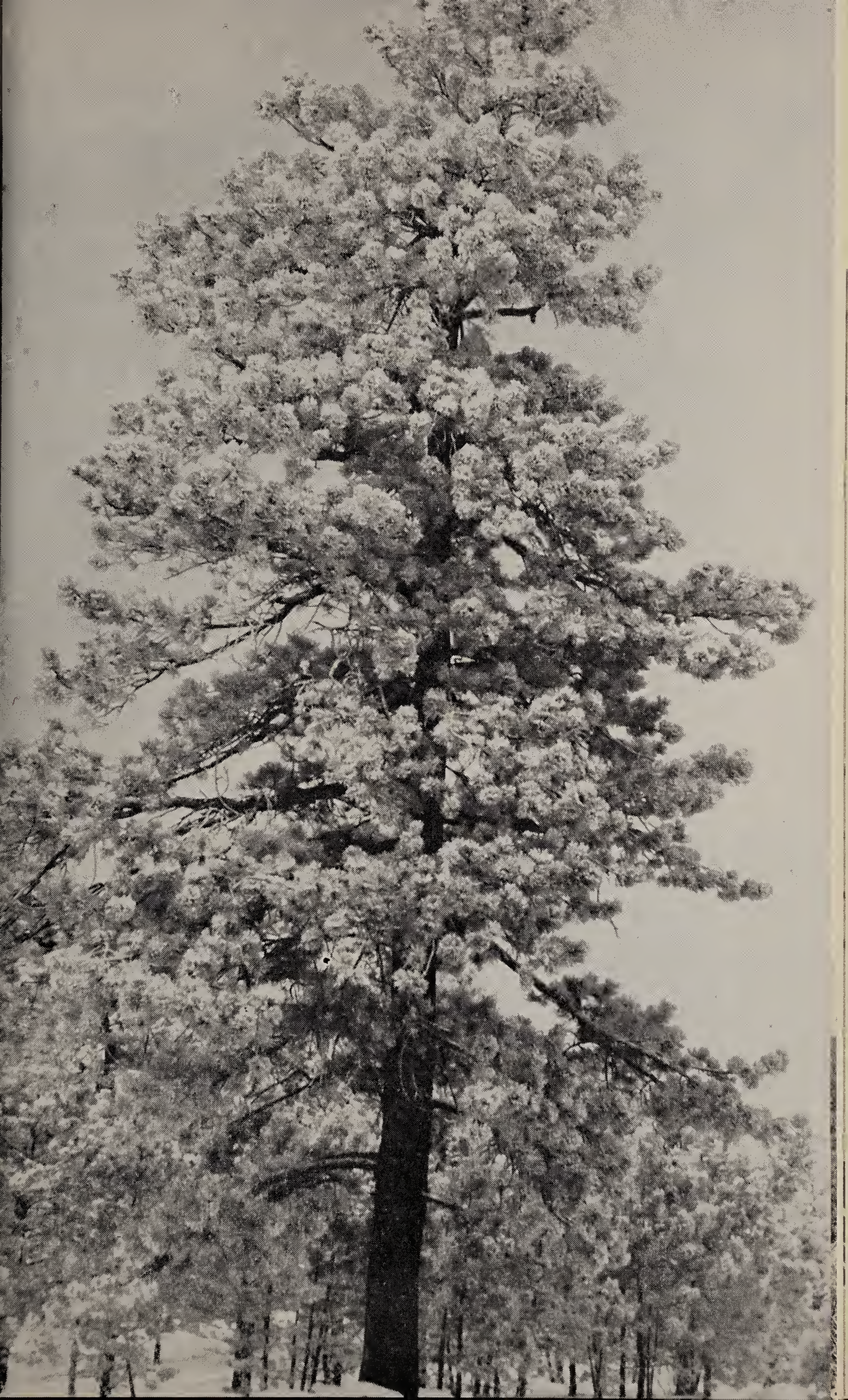
A pine cut down, a dead pine, is no more a pine than a dead human

carcass is a man. Can he who has discovered only some of the values of whalebone and whale oil be said to have discovered the true use of the whale?

Is it the lumberman, then, who is the friend and lover of the pine, stands nearest to it, and understands its nature best? . . . No, no, it is the poet; he it is who makes the truest use of the pine.

—Thoreau.









## Forestall Tree Trouble

From "The Shade Tree Digest" Presented  
by Swingle Tree Surgery Company

Now, before the leaves fall, is a good time to inspect your shade trees and plan the work that should be done in the coming months to protect their health or improve their appearance. Some conditions with potentialities for trouble can be seen much more easily when the trees are in full foliage than after the leaves have dropped.

A dead branch, bare of foliage or to which a few brown, withered leaves may still be clinging, is as noticeable as a sore thumb at this time of year. Later, those which have died so recently that they still

retain their smaller twigs often are difficult to distinguish from living branches.

Usually, the first symptoms of unfavorable soil conditions are found in the relative abundance or appearance of the leaves. The foliage of the upper branches, or throughout the crown, may be sparse and thin as compared with that of nearby trees of the same species; the individual leaves may be smaller-than-normal and yellowish or pale-green in color; the leaves may drop earlier than those of adjacent trees.

Branches that are unduly long in comparison with their girth will droop excessively under their load of leaves. Often, the wood of such branches is weak, and is likely to break in wind, snow or ice storms. Conditions may call for pruning to lighten the load, or installation of a system of cables and braces to provide additional support.

Dead wood, abnormal foliage, pendulous branches—these are forerunners of trouble. An ounce of prevention is worth a pound of cure as far as the health of your tree is concerned—and it's much less expensive too!



Hollyhocks—On account of the prevailing hollyhock disease—a disease of the foliage hard to combat—it is best to grow one-year-old plants as they are less affected than the older ones. The singles are the most charming.



## HEMEROCALLIS (DAY LILY) NEWS

By LEMOINE J. BECHTOLD

Many enthusiastic flower gardeners agree that the hemerocallis lily will become as popular as the beloved iris, since the daylily follows in bloom just as the iris leave us, and many varieties continue to bloom throughout the summer.

Eager, patient and enthusiastic hybridists are working widespread to create new colors, new shapes, greater substances and sizes, better blooming and growing habits—and truly you have only to see the new huge twisted orange types, the velvety deep reds, those creamy pinks with ruffled edges, to feel the urge to grow them in your own garden. New and improved patterns and types appear yearly—bi-colors with petals of one color and sepals of another color, some with deep colored throats and blended petal tips. Some petals may be twisted, some crinkled and others recurved.

The hemerocallis lily responds generously to extra care and fertilization of soil. They multiply just as the iris do and will become overcrowded in time, so they should be dug up and the divisions separated and perhaps just three of the strongest be replanted in a triangular form to make a quick flowering clump again. This is important, as crowded clumps do not bloom as abundantly and the flowers become smaller also. Replanting is best done in August or September or after the blooming period.

They are tolerant to all soils so there is no problem. Some varieties will grow along the edge of a stream with roots in the water the year round.

The latest developments are remon-  
tant (ever blooming) strains. These

continue to bloom or rest for a while then bloom again. Also new hybrids are being developed that have a forty-eight (48) hour span blooming period, instead of twelve or twenty-four hour blooming periods.

The importance of this progressive plant has grown to such an extent that a national Hemerocallis Society has been formed, already quite a number of years old. The membership is represented in almost every state of our nation. May 18th, 19th and 20th, the yearly Hemerocallis show was held at Valdosta, Georgia. More than eight hundred visitors from seventeen states attended and enjoyed the hundreds of varieties of day lilies—blooming at their peak in display gardens.

There is such a wide-spread variation in day lilies that one soon finds his or her favorites. Just one plant has oftentimes incensed the desire for a large collection of them.

Because the hemerocallis is so faithful to bloom, so easy to grow, so sturdy to withstand cold winters and drouth of summers, so disease and pest free, we recommend it most heartily for Colorado.





## WHAT WORTH WILDERNESS?

PAUL B. SEARS

*Chairman, The Conservation Program, Yale University*

**T**he state of Ohio, containing about 40,000 square miles, was once a magnificent hardwood forest. The forest types, thanks to the records of early surveyors, have been largely mapped. Yet it is almost impossible to form an adequate picture, from any surviving records, of the appearance of that forest. The state has its full share of memorials—statues, libraries, institutions; some useful, some not; some beautiful, many ugly. But somehow it never occurred to anyone to set aside a square mile, much less a township six miles square, of primeval vegetation for future generations to see and enjoy. Yet this could have been done for less than the cost of a single pile of stone of dubious artistic and cultural merit.

Farther west the "boundless" prairie, that living carpet of wonderful changing colors, is all but gone. Strenuous effort will be required to set aside proposed grassland national monuments. Unless this is done, the prairies will survive only on the pages of travelers' journals and in the descriptions of those who, like Willa Cather, knew and loved them.

We need not, said Darwin, marvel at extinction. But we have reached a point of civilization where we are no longer proud to be the agents of extermination. Once we are reminded that a species — key-deer, trumpeter swan, moccasin-flower or arbutus—is in danger, it is possible although never easy to rally help in preserving it. Often, as with the heath-hen and passenger pigeon, help comes too late.

The business of preserving game species moves somewhat more briskly, being substantially financed by license fees and insistent sportsmen.

But for a long time the conserver of species, whether sportsman or not, missed the point. It seemed enough to slow down or stop the actual killing of individuals. We ignored an ancient rule of warfare, put into effect by Rome against Carthage: if you wish to eliminate, destroy the center of activity, the home.

Now the home of any species is the community of which it is a part. True, by juggling diet we can now get certain wild animals to breed in a zoo, but that is a sorry expedient. As Ding Darling once pointed out, you can always tell a tame mallard from a wild one by its pot-belly. If we are really serious about preserving any species we must preserve, in generous measure, its community of plant and animal life. Can we, in our own larger community of fierce competition for space, justify this?

Sentiment, of course, draws scorn from the practical-minded. But I doubt if sentiment is as fragile a defense as we think. How cheaply would the toughest-minded sell the loyalty and pride of those who serve with him in factory, field or countinghouse? How great can a commonwealth become, how long can it endure, if it measures everything by price tag?

We are, and rightly, generous in our regard for the group of most unusual men who made possible our Nation and planned its greatness. But we ought to remember, too, that in large measure our power and leadership are based upon the lavishness of Nature, building undisturbed through milleniums. The ancients thought it not unworthy to worship the gods who gave them grain—rice, wheat, maize. Is it unworthy in our



enlightened day to commemorate, by generous preservation, the natural wealth which has been the lifeblood of our economy? I, for one, do not think so. To me it seems a matter of ethics and national self-respect.

There is also, in the need for generous natural areas, the question of important scientific knowledge. The undisturbed community of plants and animals is a beautifully organized dynamic system, employing energy from the sun for the use and re-use of water, air and minerals in sustaining abundant life, while keeping its own organization going. Technically this presents an exceedingly important phenomenon, the approximation of a steady state. Our knowledge of this phenomenon can do with considerable improvement, and again we need generous examples for its study. When men are beginning to talk rather seriously of raising some billions for the exploration of space, we ought not to neglect a more immediate, and definitely hopeful, source of knowledge. Knowledge for its own sake, like sentiment, is not lightly to be written off by a civilized nation.

Yet neither knowledge nor sentiment alone afford the most powerful justification of ample wilderness or natural areas set aside in perpetuity. Rather it is the mixture of practical, theoretical and ethical symbolized by the question, "What kind of a Nation do we want?" Do we wish to build a future completely and ruthlessly mechanized, standardized and artificial? Do we really mean to crowd back Nature to the utmost minimum, depending upon ingenious artifice at every turn for physical and spiritual sustenance, until we have to eat standing up and the healing which comes of solitude survives only in dreams?

The hour is late, but we still have a measure of freedom to choose.

From BULLETIN TO THE SCHOOLS of the University of the State of New York, March 1953. Reprinted by the Nature Conservancy.

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## ????? AND ANSWERS

**H**ERE are a few of the questions that come into Horticulture House that might be of interest to other gardeners.

*Q. How can I protect my young apple trees from rabbits over winter?*

**A.** Wrapping them with waterproof paper, light felt roofing paper or old screen wire will do the trick. Remember that much of the damage is done when there is snow covering other feed, so wrap high enough to provide for the rodents standing on a foot or more of snow. There are repellent chemicals sometimes used to make the bark of apple trees unattractive to rabbits, but many of these preparations lose their effectiveness in a few days or weeks.

*Q. Would you suggest the planting of Buffalo grass for a lawn around mountain homes?*

**A.** In the last few years Buffalo grass has been used very effectively in the plains area and where little rainfall can be expected. New methods of preparing the seed have been worked out which give a much higher rate of germination. Around most mountain homes blue grass would be more effective, and in most mountain locations there is enough natural rainfall to support blue grass.

*Q. Moles are seriously damaging my lawn. What can I do to get rid of them?*

**A.** We do not have the eastern moles here. What you have are probably gophers or *Spermophiles*. These can be eliminated or at least discouraged by flooding their holes, by running a hose from the exhaust of a car into their burrows, by feeding poisoned grain, by traps, or letting the family cat loose to catch them.

*Q. Should you leave a circle of bare earth around the trunk of shade*

*trees, should this be sodded right up to the trunk or should there be a bare area planted to flowers around the base of trees?*

**A.** The chief reason for leaving a bare place around trees is to avoid the trouble of trimming lawn around them and to avoid the danger of barking them when mowing the lawn close to the trunks. Generally the best plan is to leave a circle only a few inches wide around the trees and let this be at the same level as the lawn so that there will be no ragged edge left to trim by hand. Flowers planted around trees usually look artificial and meaningless.

*Q. Can you use chemical fertilizers in seeding new lawns?*

**A.** Sure, you can use chemical fertilizers in the making of new lawns, but they should be used with caution and thoroughly mixed with the soil, preferably at the lower levels, as most seed prefers to sprout in just good clean soil. Overdoses of either chemical or organic fertilizers may be fatal to newly started grass seed, or any kind of seed. Peat may be used liberally because it is not a chemical and simply improves the physical condition of the soil making it more porous and water retaining.

*Q. Why did my morning glory vines look yellow and sickly last year?*

**A.** This is a condition called chlorosis, which is caused by a lack of proper elements in the soil. In this area the condition is usually caused by an excess of alkalies in the soil which prevent plants from using the other necessary elements. Often this is an iron deficiency. The condition may often be improved by the addition of manure or acidifying chemicals such as sulphur, iron sulphate or aluminum sulphate.



Q. Will lawns ever need watering during the winter?

A. Yes, most lawns will need a watering or two during winter. Whenever the soil is dry and not frozen it should be given a good soaking, whether that be December or February.

Q. What amount of nitrogen does a lawn need?

A. It would be difficult to set any definite rules for feeding lawns, but we do know that most lawns are greatly benefitted by the addition of a fertilizer containing nitrogen. The highly soluble chemical fertilizers are best applied in small amounts and, if necessary, frequently. Most of the organic fertilizers can be applied more freely and less often for the chemicals are released slowly.

Q. I have several old apple trees that have had little attention for several years. When should they be pruned?

A. Actually most of the pruning of commercial orchards is done in the winter or early spring, largely because the owners have more time then to do the job. Emergency pruning can be done at any time. Thinning and spacing the limbs will often result in larger fruit; better colored fruit and less breakage of overloaded limbs. Intelligent spacing of limbs will also allow for more efficient spraying and increase the life of the tree.

Q. Will the "Christmas Rose" grow here?

A. Yes, in a protected place. They are borderline plants, but many have survived and bloomed when given a little covering at the right time.

Q. What is peat or peatmoss, what are the differences in various brands and should it be used straight or in mixture with manure?

Q. Peat is an organic material found in old bogs where vegetation has grown up and fallen back in the water for many centuries. The readily decomposed material from this moss or other vegetation has disappeared and the fiber has been "pickled" under water much like sauerkraut. Most peat has little or no chemical value, but it is very important for making sandy soil more retentive of water and for loosening up heavy, clay soils. To make it most effective it must be thoroughly mixed with the soil. Many like to add a little chemical value by mixing with sheep or cow manure.

The local peat is usually sold in bulk and is most likely to contain a small percentage of soil and be rather moist. The bailed peat from Canada or Michigan is more nearly pure peat and contains little moisture. Prices for the two types are comparable when the actual amount of peat is considered.

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## TURF GRASS RESEARCH AT COLORADO A & M COLLEGE

Lawn grass is more important to more people than any other crop. Grass is of major concern to everyone living in Colorado whether in the city or in the country, or whatever one does for a living. The home lawn is direct concern to every householder and his family. All people at sometime are concerned with grass on golf courses, city parks, school grounds, football fields, highway rights-of-way, cemeteries, and recreational areas. Grass is a land conserver, a soil improver, and it increases the value of real estate. It makes the farm property, the school yard, the landscape, the parks and recreational areas more beautiful and in so doing brings about greater utility and efficiency.

Under conditions of high altitude, low rainfall, low humidity, bright sunlight, dry and open winters, and alkaline soils, there are many maintenance problems which should be answered by research methods. The problems are so different from other areas of the United States that results reported from other states do not always apply here.

The expanding demand for water

caused by the industrial expansion and large increases in population in the west has created a critical water supply problem. The proper use of water is the key to maintenance of a good turf. Millions of gallons of water are used each year to maintain lawn grasses and more lawn areas are being established each year, even under decreasing water supply conditions. The turf advisory committee, made up of representatives from different grower and city organizations, have requested that Colorado A & M College start a research program mainly concerned with how to maintain a satisfactory grass turf with a minimum amount of water use.

The primary objective is to determine how to conserve water supplies by conducting research work on:

### I. Irrigation—Rates, Frequency, Methods and Costs

This will vary with soil types, topography, and weather, but fundamental requirements for water are the same.

Tests will be set up on methods of water application as well as rates and frequency in relation to depth of root penetration. Research work on irrigation was started in 1953 in which varying amounts of water was applied at different day intervals.

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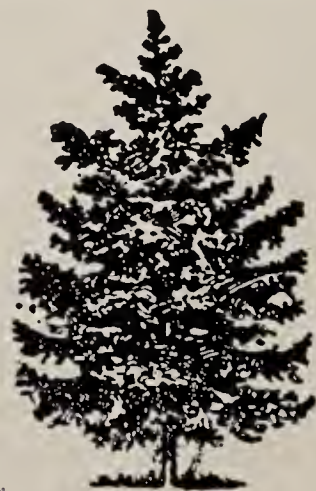
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## II. Species, Varieties and Strains of Grasses

Tests to determine depth of root penetration in relation to moisture supply, winter drouth and hardiness tests and combination behavior of warm and cool season grasses. This may include drouth resistant ground cover plants.

## III. Fertilization of Turf Grasses

Studies of fertilizer rates and types in relation to water requirements necessary to maintain a satisfactory turf. Differences in slope, soil types, excessive traffic, heat, winter drouth are all variables found in Colorado turfs, and basic fertilizer tests are planned to find some of the answers of maintaining turf at lower costs.

## IV. Lawn Turf Weeds

Work on this phase is under way now and will include pre-emergence soil treatment for weed control previous to seeding new lawns.

The turf research program has been started at Colorado A & M College and is planned on a continuous basis. The extent of the research work will be determined by the funds available each year as can be supplied cooperatively by the Colorado Agricultural Experiment Station and the Rocky Mountain Turf Association through its advisory committee.

## National Park Service

From State Park Statistics

"The role of the State parks in meeting the recreation needs of the Nation continues to expand in significance, as shown by records of expenditures, visitation, and development of State park programs in 1953. Attendance at State parks has risen each year since World War II, reaching an all-time high of about 160 million in 1953. The upward trend in expenditures, revenues, and personnel has also continued. In 1953 the rate of increase in expenditures and personnel kept pace with the gain in attendance to a substantially better extent than in 1952, when the rate of increase in attendance was three to five times as great as the increases in expenditures and personnel."

And Colorado hesitates to establish State parks.—Ed.

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## Seeds Require No Passport

By M. WALTER PESMAN

Again Colorado's produce is represented in seven or eight botanical gardens of Europe. Not only do those institutions like to get unusual seeds from the "Far-West," they also are interested in comparing known plants from here and there.

To be specific, we shipped such unusual things as Engelmann spruce, Utah juniper, mountain mahogany, native milkweed, and black-fruited hawthorn (*Crataegus saligna*), but also fruit of our kinnikinnick, which appears to be the same as the Bearberry grown in Lapland and Switzerland, all under the name of *Arctostaphylos uva-ursi*. Seed of our native Boxelder was sent for comparison with that grown in Europe.

All in all each botanic garden—in Sweden, Denmark, Norway, Belgium, Holland and Switzerland—received at least thirteen different kinds of seed. Even Old Mexico was represented by a sample of apple seed collected from a crabapple which survived within three miles of the active volcano of Paricutin.

As we are getting our stride in our own Botanic Garden, we can count on cooperation from other botanic gardens all over the world.

It will be interesting to find out if the yellow clematis in the neighborhood of Idaho Springs will be found to be identical with the *Clematis orientalis* in other regions.

P.S. Seeds sent were *Asclepias speciosa*, *Acer glabrum*, *Acer negundo*, *Arctostaphylos uva-ursi*, *Cercocarpus montanas*, *Clematis orientalis*, *Crataegus saligna*, *Crataegus mollis*, *Juniperus scopulorum*, *Juniperus utahensis*, *Picea engelmanni*, *Senecio spartioides*, *Shepherdia canadensis*, *Annona cherimola*, Paricutin Crab, *Juniperus communis montana*.

## Control of Spider Mites

From The Shade Tree Digest as presented by Swingle Tree Surgery Company

The common red spider and related mite species are responsible for a great deal of injury every summer to a wide variety of trees and shrubs. They feed by piercing the foliage with their beak-like mouthparts, and drawing out the sap. In severe infestations the affected portions of the plant become shriveled, change color, and die. Sparce and dying needles on evergreens often is attributable to mites.

One of the obstacles to effective mite control is the fact that few materials which are toxic to the prolific insects will also kill their eggs; hence, repeated sprayings and dustings are usually necessary. In an attempt to provide more efficient control of the European red mite by destroying the eggs, a series of experiments recently were conducted at the State Agricultural Experiment Station, Wooster, Ohio. Materials of proved toxicity to adult mites were used, including organic phosphates, sulfonates, sulfone, sulfite, carbinol and dinitro phenol. As reported in the "Journal of Economic Entomology," the most effective materials were found to be EPN, parathion, malathon and ovotran applied on summer eggs. Although except in a few individual cases none of these materials gave a 100% kill of the eggs, results of the tests show definite promise for better control of red spider mites.

---

*Inula ensifolia* is a low-growing, very hardy plant bearing freely yellow daisy-like flowers, always presenting a neat appearance.



## Be Careful With Insecticides

We have recently heard of a farmer in Texas who last summer sprayed 29 head of cattle by mistake with TEPP (tetraethyl pyrophosphate). Within 15 minutes every head of cattle was dead and the farmer was sent to a hospital and barely pulled through. One drop of this material was enough to kill a man yet he used one gallon and the label on the package did not indicate that this material was so deadly.

There are many new and valuable insecticides being developed in the last few years. Used properly they can do a lot of good, but used carelessly they may be very dangerous. Be sure that you know what the precautions are for safely handling these powerful chemicals and if a mask, gloves or rubber suit are indicated do not try to get by without using these precautions. In most cases it is safer to let a thoroughly trained man handle these dangerous compounds.

---

He is happiest who has power  
To gather wisdom from a flower.

—Wordsworth.

---

Regular waterings begun too early in the season will simply encourage shallow rooting and cause more work later on. As mentioned before, proper preparation of the soil and proper watering should eliminate many of the weed problems. However, many times these conditions cannot be controlled and weeds will do a great deal of damage to the lawn. Maintaining a dense, vigorous stand of grass is the best way to prevent weedy lawns. Should weeds get a start, effective measures should be taken to eliminate them before they choke out good grass.

## SIGNS OF THE WEATHER

**DEW**—If the dew lies plentifully on the grass after a fair day it is a sign of one more fair day; if not and there is no wind, rain must follow. A red evening portends fair weather, but if it is spread too far upwards from the horizon in the evening and especially in the morning, it fortells wind or rain or both. When the sky in rainy weather is sea-green, the rain will increase; if with deep-blue, it will be showery.

Taken from an old copy of Dr. Chase's Recipes, published in 1864.

---

Garden perennials such as strawberries should be protected with a straw mulch after planting so that they can acclimatize to the location before the sun dries out the new plants.

We have a good assortment of large specimen shrubs in the field and in containers.

Why wait years for an effect we can give your grounds at once?

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## Helen Fowler's Notebook

### SNOWFLAKES FOR SPRING—

One reader asks, "What are snowflakes?" "I am familiar with Glory-of-the-Snow and Snowdrops but a friend tells me Snowflakes are the prettiest of all." For me it might just as well not be spring if there are no Snowflakes. *Leucojum* is their technical name, given by Linnaeus. Nowhere can I find an explanation of



the application of the name pronounced (Loo-co-jum) accented on the second syllable, long o. Both *L. aestivum* and *L. vernal* are about one foot high, with nodding, dainty, white bells, tipped in green. As soon as they can be obtained in the fall, they should be put in the ground immediately, planting about three inches deep.

The Snowdrop—*Galanthus* comes before our snows are gone and must make its own picture, while Snowflakes which come one month later,

can be planted in groups with the Tulips and Daffodils. These bulbs with the white bells of the *Leucojum* and a few Grape Hyacinths added, wake up spring, with its melting snows, greening lawns and leafing trees.

HELEN FOWLER.

Does my lawn need lime? Answer—Lime is not a plant food and has absolutely no fertilizing value. Lime should never be used unless the lawn soil is absolutely acid. We do not want sweet soils for lawns. Lime brings weeds and burns up all humus in the soil. Kentucky blue grass does its best in slightly acid soil. If your lawn is growing moss, then your soil is extremely acid and does need lime.

If you wish to make your lawn area highly acid and do not mind the extra care necessary to give a bent lawn, you may rout out all weeds entirely. To sum up, lime is only beneficial in reducing the acid content of soils and improving a too-heavy soil texture. It should never be used as a lawn dressing. In a majority of cases lime does more harm than good.

HELEN FOWLER.

From Borrowings for a gardener who is ill," There is a purity which only suffering can impart . . . the stream of life becomes snow-white when it dashes against the rocks." Jean Paul.—H. F.

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## LOOK AND LEARN GARDEN TOURS

THE months have gone by so quickly that I hardly realize that here it is, October and all the fun of visiting gardens is over, and I must get busy and make a report. Not that I mind doing so, for truly that is a job I really like. Just listing those gardens and their charming owners, brings the summer back vividly—May 26, we visited Mrs. John MacKenzie, Mr. and Mrs. Ray Bowlus, Mr. and Mrs. C. Earl Davis, Mr. and Mrs. Glenn Clayton, Mr. and Mrs. LeMoine Bechtold, Mr. and Mrs. T. A. Hutchinson, and Mr. and Mrs. Horatio Ramsey. On June 27, we visited Shiichi Fukuhara, Bertie Bieler, Mr. and Mrs. C. E. Woodend, Mr. and Mrs. L. R. Degen, Dr. and Mrs. T. E. Best, Mr. and Mrs. David S. Touff—In July, Mr. and Mrs. Clair Robinson, Mr. and Mrs. Stuart Smith, Mr. and Mrs. Burnham Hoyt, Dr. and Mrs. A. A. Hermann, Mr. and Mrs. Carleton Goodwin, Mr. and Mrs. Donald Bromfield and Mr. and Mrs. W. L. Prouty—On September 2, Mr. and Mrs. Jack Harenberg, Mr. and Mrs. Donald N. Gilli, Mr. and Mrs. Phillip T. Handwerk, Mr. and Mrs. Charles Eisele, Mr. and Mrs. Jack N. Withers, and Mrs. Hazel Hill—now, really, could you find a more profitable and beautiful way to spend the summer than visiting all these lovely gardens. In each there was something we could adapt to our own uses, and many lovely features of gardens were explained by the garden experts.

Speaking of garden experts, we want to thank all those who helped again this year. Many did so more than once, and some new people were added to our list. Charles Wilmore, Percy Hartley, Bill Lucking, George Stadler, George Kelly, Sue Kelly, Clair Robinson, Sam Huddleston, Kenneth Wilmore, Dr. and Mrs. Hermann, Carleton Goodwin, Scott Wilmore, Mrs. J. V. Petersen, Don Steele, Mrs. C. Earl Davis, Martin Keul, Ed Johnson, George Amidon, Helen Ziener, Walter Pesman, Mrs. Persis Owen, Mrs. J. R. Ballinger, Mrs. Vella Conrad, Mrs. Raymond Yaggy, Mrs. Loudon Johnson, Ed Wallace, Jack Harenberg, Moras Shubert, Jack Leaman, Earl Sinnamon and Herb Gundell—how could we have these garden visits without the help of all these good people, and I just hope I haven't omitted any in this listing! I don't want to, and won't intend to!

These good people helped as hostesses—Mrs. Ralph Hill, Mrs. A. Barbour, Mrs. Rose Hughes, Mrs. Frank McLister, Miss Elizabeth McNary, Mrs. Bill Lucking, Mrs. John MacKenzie, Mrs. Venrick, Mrs. Robert Perry, Mrs. Edmund Leet, Mrs. H. Butterfield, Mrs. Louis Binderup, Mrs. Elmer Cochrane, Mrs. Robert Harris, Mrs. H. Lindstrom, Mrs. Bernice Cox, Mrs. Ed Weith, Mrs. Louis Loeb, Mrs. M. J. Carney, Mrs. A. Lilly, Mrs. Clair Robinson, Mrs. W. W. Pilham, and Mrs. Harold Webster. Again, I don't want to overlook any and I hope I haven't done so.

How can we thank you all! We don't want to make this sound as though we didn't appreciate all the time and effort you all put into this summer's fun, for in some instances it really was hard for you all to be at the appointed place at the right time. We do appreciate it very much, and so maybe the best way is merely to say "THANK YOU ALL"! We want especially to thank Mrs. Rose Hughes, Chairman of the Garden Tours Committee, for all the time and telephoning she had to do, and all the planning and arranging she did. A very special "THANK YOU", from







November, 1954

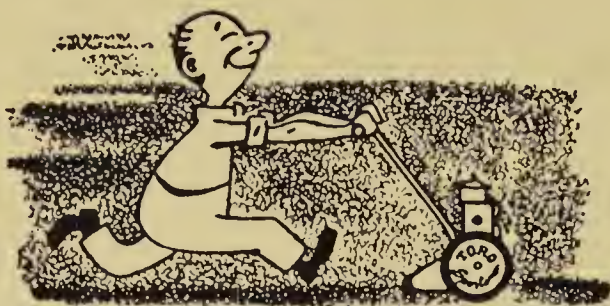
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 but there was no room in it for the  
 memory of a wrong.—H. F.



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## Some Interesting New Books in the Helen Fowler Library

"The Arnold Arboretum Garden Book," by Donald Wyman. Donald Wyman, Horticulturist for the Arnold Arboretum, is one of the country's greatest authorities on horticulture, but his greatest love is for the ornamental woody plants, so his recent book emphasizes these plants.

It is a well-written book, beautifully illustrated and contains much information for gardeners anywhere. Many of the plants mentioned will grow in this area.

"Trees for American Gardens," by the same author, is a few years older, but a book that any gardener will enjoy.

"The Complete Book of Dried Arrangements," by Raye Miller Underwood, is a book that we have been waiting for, for years. It goes into every detail of collecting, drying, arranging and displaying dried material of every kind. This is rapidly becoming a major hobby of beauty lovers. The text is simple and plain and the illustrations are excellent.

"Button Gardens and Diminutive Arrangements," by Florence Casebolt, is another book of the same sort which will help those who have become interested in this popular hobby.

"Arranging Flowers from the Roadside, Fields and Woods," by Amelia Leavitt Hill, is a new book which emphasizes a third new trend in flower arrangement. You will get many good ideas from this book.

"Plants of the Bible," by Harold N. and Alma L. Moldenke, is a new book on an old subject. Many will enjoy the descriptions and identifications of the plants mentioned in the bible.

Come in to Horticulture House and look at these, and other new books, and check out the ones that you want to take home and study.

GEORGE W. KELLY



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# The Green Thumb

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Vol. 11

NOVEMBER, 1954

No. 11

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*Picture on front cover of Birch trees, by Chas. Ott and B. Korphage.*

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### THE COLORADO FORESTRY AND HORTICULTURE ASSOCIATION

A non-profit, privately financed Association.

1355 Bannock Street

• Denver 4, Colorado •

TAbor 5-3410



## AN OPEN LETTER TO OUR MEMBERS

THE officers and directors of the Colorado Forestry and Horticulture Association have been making a painstaking analysis and reappraisal of the Association's activities during the past several months. They are studying our objectives, our services to the membership and to the public at large as a non-profit educational and scientific organization, also our membership and our finances.

Our membership has in recent years varied from 2000 to 2500. Drives have brought the membership to the higher figures, and these drop as a result of non-renewals. Of course we realize that in this day of TV, of numerous organizations, and the profusion of reading material that some loss is certain. On the other hand there is greater interest in lovely gardens and beautiful landscaping, and the Association has endeavored to stimulate this interest through THE GREEN THUMB and its informational service. Certainly there are many problems to gardeners in this day of droughts, irrigation restrictions, insects and other plant pests.

The Association has been wonderfully helped—financially and in contributions of time—by a number of citizens who believe strongly in its program of working for a more beautiful city and state. Were it not for this financial help we could not afford to publish a magazine—588 pages in 1953—filled with helpful articles, pictures and diagrams. As a matter of fact the average cost of publishing twelve issues of THE GREEN THUMB is more per member than the minimum membership fee.

Now we face the prospect of losing some of our large donations, as some of our good friends feel that they have done their duty, and that the Association and THE GREEN

THUMB should be supported by a larger number of people.

So we are going to ask you some questions.

Do you read THE GREEN THUMB each month?

What features do you like about it?

What feature, from your point of view, may be eliminated?

What can you suggest to improve it and make it appeal to a larger group of people?

Is it larger than necessary?

It has been proposed that the number of issues be reduced to not less than nine annually, omitting issues in months where there is little gardening activity—possibly February, August and November. The proposals further advise sending out in these months several mimeographed sheets with gardening suggestions and dates of gardening activities. This proposal might take the form of combining several issues during the year, such as Jan.-Feb. or Oct.-Nov. Let us have your suggestions on these ideas.

Should more attention be given to conservation features, such as a drive to get a live state park division and some state parks, particularly in the eastern half of the State?

Should the Association take a stronger stand when conservation practices and the National Parks are threatened?

Should the Association again call a Rocky Mountain Horticulture Conference in 1955? This was passed up during the past two years because the Western Shade Tree Conference and the National Men's Garden Club Convention were held in Denver.

If you believe in the objectives and causes for which this Association stands would you be willing to step





Colorado Forestry and Horticulture Association

Organized in 1884

*"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to make available correct information regarding forestry, horticultural practices and plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."*

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up your membership from a Supporting (\$3.00) to a Sustaining (\$5.00), or from a Sustaining to a Contributing (\$10.00)?

If you are now a \$3.00 member would you favor an increase to \$3.50 or \$4.00, so as to cover a greater part of the cost of twelve issues of THE GREEN THUMB and other activities of the Association?

We are especially desirous of bringing into our membership young married couples living in the new housing developments. The Association and THE GREEN THUMB can be of great help to these young people in helping them to beautify their places, especially in avoiding the pitfalls of planting trees and shrubs not adapted to our soil and climate.

But there is a ray of sunshine in the picture we have been drawing. A good friend of the Association is willing to match the contributions from patron and donor memberships (\$25, \$50 or \$100) up to a maximum of \$2000 during 1955. The Association is classified as a tax exempt, scientific and educational institution and all gifts to it may be deducted in computing federal and state income taxes. Patrons and donors will be listed in THE GREEN THUMB from time to time as is done by many civic organizations.

We urge our entire membership to submit answers and suggestions to

the above questions. This is your Association and your advice will be greatly appreciated. If you will phone Horticulture House, TAbor 5-3410 we will be glad to explain in more detail our problems and possible solutions.

Also why not give a year's subscription to THE GREEN THUMB as a Christmas present to your gardening friends. That is a good way to introduce more people to the work of our Association.

Sincerely yours,  
Board of Directors,  
Fred R. Johnson, President

THIS ISSUE IS ABOUT TREES

This issue represents the best that has been printed about deciduous trees for Colorado in the Green Thumb since its beginning. The lists have been combined and revised up to date and the descriptions have been simplified and corrected.

It classifies trees as to the location in the state, as to size and as to quality.

The one article, that by Mr. Pesman, was judged to be the most complete and useful of all those previously published and as such is repeated here. You will want to refer to this issue for years.





## CHERRY DISCOVERS THAT A GARDEN THAT IS BEAUTIFUL WHEN THE FLOWERS AND LEAVES ARE GONE IS A GOOD GARDEN.

Saturday, November 6, I never noticed before how all trees have different shapes, kinds and colors of bark and limb habits. When they were all in leaf they were just trees to me. Now I notice the picturesque habit of the Honeylocust limbs as seen against a fall sky, the "vase form" of the American Elm and the almost spruce-like form of the English Elm. I can see how each kind of tree is especially fitted for certain uses. (And I can also notice broken and dead limbs in the trees now that need to be taken care of.)

Red came home in the afternoon and I took him to see the trees. He did not get the thrill that I did from seeing just their bare trunks and limbs, but when I mentioned that there were limbs to be cut off, he became interested immediately. He got out the old saw and ladder and started climbing up one. He got two small limbs that were near the center of the tree cut off and then came down "for a drink," and did not go back. He told me later that he thought that we should get a professional tree man to do that work as it was too dangerous for him.

Dad Dendron came by, as was usual practice for him on Saturday afternoons. He found another spot where the annual flowers had been and proceeded to spade under a lot of manure and compost to get it ready for next spring. I pestered him as he worked and he asked me if there were any other plants that I needed to complete my plan that could be safely planted this fall before it froze up solid. He suggested that I call my nurseryman and ask him what things he would be willing to put in now and guarantee.

Sunday, November 7. The sun has been hot for several days now and I wondered how my plants were all faring, so I went out with a shovel and dug into the soil in a few places. On the sunny side I found the lawn quite dry, but in the shade and on the north it seemed to be O. K. In one place I dug down two feet or more and discovered that the subsoil was very dry. According to Dad Dendron it is very important to have the soil wet down as far as the longest roots before it freezes up for winter. I'll get the hoses running while I give everything a final clean and trim up for winter. That will give me something more to add to the compost pile.

Saturday, November 13. Mother was over this morning, and as the weather seemed more like August than November she was all full of ideas for things to be done in the garden. She called my attention to the fact that every garden needs some of the inanimate features such as pools, rockeries, walls, statuary, planter boxes, platforms and trellises, to give interest and design to it after the bright flowers and green leaves are gone. We worked out a lot of ideas that sounded good, but I suspect that, like my Christmas list, they will have to be cut down to fit our budget and grounds. I'll see which Red will get enough enthused about to help with. I suspect, though



Mom has good ideas, we will need the help of an expert landscape architect to work out exact details. I would hate to spend a lot of time and money and then find that I had forgotten some essential thing and have to do it all over again.

It began to get a little colder towards night so Red was worried about his roses. They were still in full leaf so he hated to hill them up, but was afraid that a storm would catch them uncovered. He has a pile of loose soil covered with leaves though so I guess we should not worry.

Sunday, November 14. It got colder all night until this morning it was more like winter, cloudy and all appearances of a snow coming. Mother Dendron came over in the morning, and of course started looking over the plants that I had brought in. She found some that were too wet and others too dry, and I noticed her moving some African violets to an east window and putting the geraniums in the south window. It seems as though all my house plants have too much or not enough of something: sunshine, water, fertilizer or heat. It must be nice to be born with a green thumb and not have to learn a lot of rules about handling plants. Mother D. also got to prowling around and run onto some of the bulbs that I had brought in before freezing weather. Again she found that the glad bulbs were too warm and the dahlias too dry so we had to move them around where they could be as near 40 degrees as possible and not too dry or wet. The old fashioned cellar seemed to be just right for those things but there seemed to be no really suitable place in our modern house. (How well I remember all the fascinating things and odors in my Grandmothers cellar when I was a kid—a delicious aroma of apples, cookies, spices, cider and vegetables.)

Saturday, November 20. We had a little snow last week, not enough to do any damage but enough to remind us to shade the tender things, mulch the whole garden, and trim the overly long limbs that are likely to break if loaded with snow. I'm going to stay indoors this morning and do a little studying, but if it warms up as it now indicates it might I'll drag Red outdoors this afternoon and get everything ready for more snow and cold.

Mother came over in the afternoon and as usual was all excited about something—this time it was feeding the birds. She even got Red all steamed up about it and the last I noticed he was working on a bird feeder plan that Mother had left. Mother says that if we encouraged the right kind of birds to stay around our homes there would be fewer insects left to damage our plants.

Sunday, November 21. Another raw winter day, so I am going to get seriously to work on one of my scrapbooks of plants. I believe that I'll start on bulbs—all kinds of plants with thickened underground roots or stems. That should include some very nice things. I found a nice new book that tells all about them with colored pictures and Mother left some old catalogs that I can cut up and make my own collection of pictures and descriptions.

Red got restless after he finished the funnies so I chased him out to get a little exercise. I expect that he wandered home and got to swapping stories with his Dad and forgot to come back. Well, I should worry, I know that he will come back when he is hungry enough.

Saturday, November 27. The weather was nice again today and we all felt like doing something so we went out to the garage and had a great time



cleaning up and repairing the garden tools. Red thought that he could overhaul the power mower and took it all to pieces, then decided that he could not get it together again, so I'll have to take it to an expert after all. Red fixed me up some more shelves and racks so that now every tool has its special place and there is a place for flower pots, fertilizers and garden seed. It should help next year when the rush is on.

Sunday, November 28. This business of stormy Sundays is getting monotonous. I can't get my garden out of mind entirely though. I believe that I'll get out all the pictures that I took last summer, both black and white and colored slides, and classify them so that I can get what I want when I want it. It is fun to be able to relive the summer through pictures and it is certainly very useful when I want to show someone else about some kind of plant or some garden idea, to have a collection of pictures to show.

My garden this last year was very successful in many ways. I grew some nice plants, I kept my figure down to normal doing the work in the garden, I kept a healthy appetite and I kept a good outlook on life through my association with all the beautiful things in my garden. I just don't see how one can be mean or selfish in a garden.

## TREES IN RELATION TO HOME PLANTING

BY M. WALTER PESMAN

Paper given at Shade Tree Conference, Denver, February 11, 1953 and first printed in July 1953 Green Thumb.

Texts: Micah 4:4—*They shall sit every man under his vine and under his fig tree; and none shall make them afraid.*

Deuteronomy 20:19—*Thou shalt not destroy the trees—by forcing an axe against them;—and thou shalt not cut them down (for the tree of the field is man's life).*

FROM various indications it might appear that trees are going out of style. We are getting more and more synthetic Christmas trees. Fruit comes out of a can now instead of being gathered from a plum tree or peach tree. Forests of telephone and telegraph poles supersede our live forests of yesterday. Instead of getting shade from trees next to the house, we construct overhanging eaves resembling the peak of a hunter's cap. In an Oslo park a modern sculptor places his statuary under a canopy of trees done in copper and bronze. Crown Hill Memorial Park proposes a central feature of the legendary Abraham's Oak constructed of concrete. Perhaps we can look forward

to plastic tree trunks and green-painted leaves (plus gorgeously colored blossoms) placed at the center of an artificial rockgarden done neatly in plaster of paris. When that time comes, this paper will form a valuable record of the quaint period when apparently logical-minded people were willing to go to all the trouble of planting small trees, growing them in places called nurseries, transplanting them, and then—can you believe it?—watering them laboriously and regularly to keep them growing until such time as they were getting too large, diseased, or what not, and had to be replaced by others, after which the whole tedious program started all over again.



Sure enough, cities *are* efficient tree-killers, and our desert areas of streets and stores, factories and football fields *are* being extended from day to day.

For that very reason it behooves us all to pay closer attention to trees around our homes.

Modern city planning, by the way, realizes the danger of treeless metropolitan areas and provides for more-or-less concentric park strips, on which the greedy subdivider may not trespass.

Lately a wave of apprehension has invaded home owners in regard to trees. The atmosphere of alarm in which we are plunged extends to fear that all our elms will be consumed by the Scolytus beetle, that maple scale and pearblight will kill the other shade trees, and that the red spider will suck the life out of all that is left.

Let me begin then, with a word of courage for home-owners: we are finding remedies and resistant trees and shrubs just about as fast as insects combine to give us new scares. Let us plant with a full realization that *no tree is 100% immune from troubles* and that, just as all people are human in their frailties, so all trees are,—shall we say: “tree-ish”,—and must be taken as they are, with all their good and their bad qualities. There is no tree that is one hundred percent perfect in all respects.

That in itself makes it all the more necessary for us to be as intelligent as possible in our selection and in the proper location for each tree. In home grounds each tree should be in a place and a kind that can be defended against all criticism.

With that precept in mind we need to make a distinction in regard to the purpose for which each tree is planted. Roughly speaking, four types of usefulness stand out. A tree may be:

1. A Parking Tree, primarily for improving the street's appearance.

2. A Framing Tree, mainly to improve the looks of our residence.

3. A Shade Tree, planted particularly for protection against heat.

4. An Ornamental Tree, its main purpose for beauty of form, leaf, fruit or flower.

Naturally, a tree may perform two, three, or all these functions.

*Parking Trees*, like the old grey mare, are not what they used to be. In fact, in modern usage,—again like the old grey mare,—they may have ceased to be altogether. With a curb sidewalk and a collection of one-story homes, a continuous row of street trees often becomes meaningless.

Where overhead wires interfere with tall trees, such rows are particularly impractical. As a result we now find hawthorns, crabapples and mountain ash as street trees in modern subdivisions, while the older portions of a city may still feature elm, honeylocust, maple, ash, or other tall trees; but where they are topped annually to keep them below the telephone wires, their effect is far from beautiful.

Let us not misunderstand each other at this point. I am in perfect agreement with the desirability of small trees (or no street trees) in a neighborhood of low homes, or where overhead wires are unavoidable. But let us not give blind obedience to poles and wires, as if they had a prime, unquestioned right to invade any location. Proper planning is often possible and always of prime importance; it can frequently place wires in alleys or in the rear, and it can locate poles in spots where they least interfere with important views. We may even arrive at an underground wire system or a wireless distribution of electric energy. No public service is to have dictatorial power as a byproduct of electric power.



The same desirability of proper planning enters into the type of tree and its continuity. Washington, D. C. has shown how beautiful a unified tree planting can be. A few other towns and cities have taken steps to plan street trees by the block. There may be a certain charm in *variety* of street tree planting depending on the whim of each home owner; in most cases the result is not charm, but chaos. On the other hand, how beautiful Denver might become if we had definite blocks set aside for the planting of honey locust, red oaks, mountain ash, Washington Thorn, and linden, just to give an illustration. And how much future trouble could be avoided by planting them at reasonable distances apart instead of crowding them as they have been so often in the past.

One more possibility should be pointed out. Row planting is logical in most street tree pictures; in special blocks, however, a few individual, well-placed specimens may set off the character of well-designed homes or groups of houses. A subdivider with good taste and broad vision can create a beautiful picture, which cannot help but result in good financial returns. Once we are willing to break with precedent, new possibilities loom up. Slavish following of the past in tree planting becomes particularly foolish where home building itself has broken away from the earlier pattern.

A *Framing Tree* may be a misnomer in certain cases; in general however, most homes profit from one or two trees or tree groups in close proximity, so placed as to form at least a part border, and thus to create a more beautiful picture. Notice that most architects, in submitting their plans, will sketch in such framing trees. Notice also that such sketching trees, are often non-descript as to botanical

variety, to be sure, but do conform with the architecture as to character and scale. Cottonwoods are not of a size to harmonize with small buildings; they might even succeed in pointing up their smallness.

So here again, we find that the modern tendency is toward the smaller type of tree, as it was found to be with street trees. Russian olives, I find are much more favored now than they were ten years ago. Pinyon Pines, hawthorns, Japanese Varnish trees, fruit trees are wanted more and more.

The exact location of these "framing trees" is rather important. You will realize that our home is first seen from an oblique angle, as we approach it from either side. That angle then, is the important one to be considered in framing. Generally speaking, trees or tree groups will look best near the corners of the home at a 45 degree angle from either wall. As luck will have it, that location is also apt to block out the view to your neighbor's house at the same time. And, better yet, if it happens to be the southwest house corner, such a tree may give shade just where shade is wanted most.

With that we have come to the next group, that of *Shade Trees*. For their location we might well watch the behavior of our pet dog. He will find shady spots in midsummer and warm, sunny basking places in midwinter; our home grounds should furnish both to give the maximum comfort and usefulness. In this, our deciduous trees have it over our evergreens: they let the sun in on wintry days. Honeylocusts and Kentucky Coffeetrees are ideal in that respect: shade in summer, sun in winter. For heavier shade, linden, sycamore and Norway maple come to mind. Catalpa can be planted in the shade of other trees and so provide a double dose.



Unless you object to slower growth, Red Oak, (and other oaks) Hackberry, and Black Walnut should have strong consideration. On the other extreme, are willows and poplars with almost immediate effect but with all the disadvantages of fast-growing trees: they are gross feeders, plug up any sewer pipes found anywhere in the neighborhood, are apt to be brittle, and thus subject to breakage in snowstorms and windstorms. Chinese elms belong in this group,—with a vengeance! They are good for a couple of hours' controversy at any tree conference.

Good little boys and girls are apt to keep the best part of the meal to the last. And so we have kept *Ornamental Trees* for our dessert. Not that the previously mentioned types are not ornamental, but that a certain group is set aside in our mind as particularly useful for locations that are *focal points* as we call them sometimes.

Ornamental trees, like many ornamental girls, have learned to display their charms to catch your eye at certain psychological times. Mere usefulness, in their case, is not enough. People do not plant weeping white birches for shade, or Dolga crabs for pickling-apples. Many of us are even willing to put up with the "day-after" effect of a Bechtel Flowering Crab since they are so dazzling while they are displaying party-dress.

Almost invariably we think of blossoms when talking of Ornamental Trees. All crabapples are outstanding in this way, so are all hawthorns. (Paul's Scarlet Haw is a "knock-out" when in full bloom). Next come Mountain Ash, Japanese Varnish Tree, flowering Plums, and almost all fruit trees. Who cares if the apples are wormy in fall, if the blossoms in spring are cheering to us. We might even risk a number of spring frosts in

the hope that our peaches and apricots will bloom once in four years. Of course, you might object to the falling blossoms of catalpa and horse chestnut, or to the "mess" they make in fruit. But that type of gardener would not have too much use for merely ornamental trees in the first place.

Colorful foliage is another attraction. That is why Schwedler Maple steals the show every spring. We have hopes that the new patented "Crimson King" will live up to its expectations, since it retains its color all summer, instead of "greening" out as does the Schwedler.

Variiegated Boxelder has been known in Europe for a long time; it should be used more here in special spots.

Just because Russian Olives are so easily grown, they are apt to be overlooked among good foliage trees. Let us not forget that their effect against a blue Colorado sky, or against evergreens is most striking. Buffaloberry and Sea Buckthorn are smaller, but have the same silvery foliage.

Purple beech and Japanese maples are hardly safe in the Rocky Mountain region. *Prunus newmanni* is good, but hardly tall enough to be called a tree.

Switching from color in ornamental trees to form and texture, we arrive at the *Weepers*. "Why can't I have a Weeping Golden Willow in my garden?" It is a very common query, and the answer is equally common: "You certainly can, if you are willing to pay the price. Willows are fast growing, brittle, and have an uncanny proclivity of finding and stopping up sewer pipes". In other words, you can plant golden weeping willows on your own peril,—which, after all, is quite reasonable. (Who else's peril?)

White Weeping Birch is much bet-



ter-behaved, but is one of those delicate creatures, that must be petted along, especially on first being planted. Weeping Mulberries are imitating a little children's playhouse in their shape. Camperdown Elm is a grafted weeping elm, whose branches resemble a sloping roof. It has a rather weird appearance, but isn't half as weird as the Weeping Mountain Ash, whose branches resemble nothing so much as a nest of huge, wriggling snakes. Well, there's no accounting for taste, and if anybody wants to imitate the garden of Eden at his home, perhaps the snake has a perfect right to be represented.

In the past, various evergreens like box and yew have been fashioned into the shapes of peacocks, roosters and corkscrews, so—what?

It is called "topiary work", and just between us, it is not too far removed from the close haircut trimming that is often given to junipers and arbovitae. Too many junipers look as if they had just been unpacked from a neatly-painted children's Noah's Ark, and dropped in the most conspicuous place little Johnny could find.

With that, we have accidentally arrived at the topic of evergreens for Home planting. It is not too easy to work in evergreens into a private garden in such a way as to make them look at home. Many people can only think of evergreens as belonging in the mountains.

To make it more difficult: the most spectacular evergreen, our Colorado Blue Spruce, seems to have a tendency of telling everybody in its neighborhood: "Look at *me*, look at *me*!" Instead of cooperating with its surroundings, it wants to dominate, both by its shape and by its striking color. A group of spruces is a bit more cooperative.

Pines are less dominating. Most of

them, however, have this in common with most spruces, that they get too large for the average home. Pinyon Pine is the blessed exception: it keeps in scale, it has a good shape, and it is not difficult to grow.

Upright junipers of numerous kinds have their place, sometimes as specimen trees, more often in combination with low evergreens, or with deciduous plant material. Most of us can take lessons from the way nature combines its plants, not at evenly set distances, not in straight rows, but in mixed plantings of all kinds of heights and textures, and colors during the season.

Incidentally, we should never fail to take advantage of the "evergreen" quality, by planting colorful things in combination with our conifers. Red dogwood for winter color, forsythia for early spring, viburnums or sumacs for fall.

Perhaps, since I started with a text, you expect me to wind up with an admonition, — perhaps to the effect that we should plant as many trees as possible around the house.

As a landscape architect with an inordinate sense of integrity I cannot conscientiously do so, even at a tree conference.

While the lack of trees gives one a feeling of desolation, especially in a city that is surrounded by our great open plains,—too many trees, crowded together without adequate planning, are almost as unpleasant. On even a large city lot a dozen trees go a long way; half a dozen, carefully placed, may act as parking trees, provide shade where needed, furnish proper framing and provide ornamentation on the average home plot. Special occasions need special treatment.

There may be situations where a sort of *tree grove* is called for, consisting of closely planted trees at irregu-



lar distances. Sometimes a few trunks, close together, create a group that has infinitely more character than a stereo-type planting, regularly spaced so as to give each tree a chance to spread out in all directions. Nature does not use a tape measure in spacing her trees. In a group that has grown up together, each tree accommodates itself to its neighbor. We aim for pleasant group planting in a well-landscaped home, rather than a crop of individual specimen trees. This makes for unity in the plan.

By the same token a landscape architect is careful not to specify *one each* of a conglomerate of types and species. After all, a home garden should be something pleasant to look at,—not just a collection of plants, no matter how well grown or how interesting each in itself might be.

At the beginning we pointed out that many functions of trees are being taken over by mechanical means: we can get some shade, some beauty, some interesting sky-tracery,—without the aid of trees. On the other hand we have tried to point out that tree planting *can* be meaningless or characterless. The point is that we should not be satisfied until we have com-

The solution is really quite simple, if only we just plant the *right* tree in the *right* spot. Each tree will then fulfill its function in making of our grounds a most essential part of the home itself.

bined their full beauty and their full utility.

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### THE AMERICAN GARDENER'S BOOK OF BULBS.

Written by T. H. Everett of the  
New York Botanical Garden

There are many books on bulbs on the shelves at Horticulture House, but this new book is a valuable new addition. It tells all about all kinds of bulbs; how to grow them, how to keep them healthy, how to use the flowers. Almost every page has a picture in beautiful full color. It is a beautiful and useful book. The author has been horticulturist for the famed New York Botanical Garden since 1932. He knows his bulbs and knows how to tell about them. You will enjoy this new book.

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If you have failed to water your evergreens during the summer, be sure to water this fall.

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*A few carefully selected and placed evergreens will give a year around effect and will make a good background for the brighter colors of summer. Deciduous trees and shrubs, if carefully chosen, will make their own display of fruit, flowers and foliage in season, and will still add to the pleasing appearance, even when out of leaf.*

*In winter, when plants are dormant, it is especially important that lines and proportions be carefully considered. The outline of a walk, or a platform or fountain, when properly designed, may be very beautiful, even when covered by snow.*

*Satisfying year-around gardens don't just happen!*

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*In our enthusiasm for the "kill-all" qualities of some of the new and powerful insecticides let us not forget that a material that kills the most insects, by also destroying more natural predators, may do more harm than good.*



# ROCKY MOUNTAIN SHADE TREES

For Irrigated Areas 4000 to 6000 Feet

## LARGE TREES

### Class No. 1 (80% perfect)

*Acer Saccharinum*—Soft Maple  
*Aesculus hippocastanum*—Common Horsechestnut  
*Aesculus octandra*—Yellow Buckeye  
*Celtis occidentalis*—Common Hackberry  
*Gleditsia triacanthus inermis* — Thornless Honeylocust  
*Gymnocladus dioicus*—Kentucky Coffee-tree  
*Quercus macrocarpa*—Bur Oak  
*Tilia americana*—American Linden  
*Tilia europea*—European Linden  
*Ulmus americana*—American Elm

### Class No. 2 (60% perfect)

*Acer platanoides*—Norway Maple  
*Acer platanoides Schwedleri*—Schwedler Maple  
*Acer saccharinum laciniatum* — Cutleaf Weeping Maple  
*Acer saccharum*—Sugar Maple  
*Aesculus glabra*—Ohio Buckeye  
*Betula papyrifera*—Paper Birch  
*Betula pendula*—European White Birch  
*Betula pendula gracilis*—Cutleaf Weeping Birch  
*Betula populifolia*—Gray Birch  
*Catalpa speciosa*—Western Catalpa  
*Fraxinus pennsylvanica lanceolata*—Green Ash  
*Juglans nigra*—Eastern Black Walnut  
*Quercus falcata*—Southern Red Oak  
*Quercus palustris*—Pin Oak  
*Quercus robur*—English Oak  
*Ulmus procera*—English Elm

### Class No. 3 (40% perfect)

*Acer pseudoplatanus*—Planetree Maple  
*Fraxinus americana*—White Ash  
*Larix* sp.—Larch  
*Morus alba tatarica* and *rubra*—Russian and Red Mulberry  
*Platanus occidentalis*—Sycamore  
*Populus sargenti*—Western Broadleaf Cottonwood  
*Prunus serotina*—Black Cherry  
*Quercus alba*—White Oak  
*Quercus coccinea*—Scarlet Oak  
*Ulmus pumila*—Siberian Elm

### Class No. 4 (20% perfect)

*Acer negundo*—Boxelder  
*Ginkgo biloba*—Ginkgo  
*Juglans cinerea*—Butternut  
*Liriodendron tulipifera*—Tuliptree  
*Populus alba*—Silver Poplar  
*Populus alba bolleana*—Bolleana Poplar  
*Populus angustifolia*—Narrowleaf Poplar  
*Populus canadensis eugenei* — Carolina Poplar  
*Populus deltoides missouriensis* — Balsam Poplar  
*Populus nigra*—Lombardy Poplar  
*Populus simoni*—Chinese Poplar  
*Salix*—Willows

## SMALL TREES

### Class No. 1

*Acer Ginnala*—Amur Maple  
*Catalpa ovata*—Chinese Catalpa  
*Crataegus crusgalli*—Cockspur Hawthorn  
*Crataegus mollis*—Downy Hawthorn  
*Crataegus phaenopyrum* — Washington Hawthorn  
*Elaeagnus angustifolia*—Russianolive  
*Koelreuteria paniculata*—Goldenraintree  
*Malus* sp. Dolgo Crabapple  
*Malus* sp. Hopa Crabapple  
*Malus* sp.—Redsilver Crabapple  
*Prunus cerasus*—Sour Cherries  
*Sophora japonica*—Japanese Pagoda Tree  
*Sorbus americana*—Mountainash  
*Sorbus aucuparia*—European Mountainash  
*Sorbus hybrida*—Oakleaf Mountainash  
*Tilia cordata*—Littleleaf Linden  
*Xanthoceras sorbifolium*—Chinese Chestnut, Yellowhorn

### Class No. 2

*Alnus tenuifolia*—Mountain Alder  
*Crataegus coloradensis* — Colorado Hawthorn  
*Crataegus oxycantha* and *monogyna*—English Hawthorns  
*Crataegus oxycantha*—Cl. Paul's Scarlet Thorn  
*Crataegus punctata*—Dotted Hawthorn  
*Juglans rupestris*—Texas Black Walnut  
*Malus baccata*—Siberian Crabapple  
*Malus ioensis*—Prairie Crabapple  
*Malus ioensis*—Cl. Bechtel Crabapple  
*Malus pumila*—Cl. Niedzwetzkyana Crabapple



*Malus purpurea*—Eley Crabapple  
*Morus alba*—Cl. Weeping Mulberry  
*Populus tremuloides*—Quaking Aspen  
*Prunus sibirica*—Siberian Apricot  
*Robinia neomexicana* — New Mexican Locust

*Salix pentandra*—Laurel Willow  
*Syringa japonica*—Japanese Tree Lilac

### Class No. 3

*Acer campestre*—Hedge Maple  
*Betula fontinalis*—Water Birch  
*Cercis canadensis*—Eastern Redbud  
*Cladrastus lutea*—American Yellowwood

*Crataegus saligna*—Willow Hawthorn  
*Malus floribunda* — Japanese Flowering Crabapple  
*Prunus americana*—Cl. Newport Plum

### Class No. 4

*Ailanthus altissima*—Tree of Heaven  
*Alnus glutinosa*—European Alder  
*Carpinus betulus*—European Hornbeam  
*Catalpa bignonioides*—Umbrella Catalpa  
*Fagus sylvatica*—European Beech  
*Malus sp.*—Crabapple (Incl. Arnold, Carmine, Parkman and similar species and varieties)

## For High Altitude Mountain Areas 6000 to 9000 Feet

(In many very high towns, the native evergreens are the only street trees possible.)

### LARGE TREES

#### Class No. 1

*Populus angustifolia*—Narrowleaf Poplar  
*Populus acuminata*—Smoothbark Poplar

#### Class No. 2

*Populus deltoides missouriensis* — Balsam Poplar  
*Salix alba vitellina*—Yellowstem Willow

### SMALL TREES

#### Class No. 1

*Populus tremuloides*—Quaking Aspen

#### Class No. 2

*Populus grandidentata*—Bigtooth Aspen  
*Salix alba*—White Willow

## For Dry Plains Areas 3500 to 5000 Feet

### LARGE TREES

#### Class No. 1

*Celtis occidentalis*—Hackberry  
*Gleditsia triacanthus*—Honeylocust  
*Populus sargentii*—Cottonless Cottonwood,  
 Western Broadleaf Cottonwood  
*Ulmus pumila*—Siberian Elm

#### Class No. 2

*Acer negundo*—Boxelder  
*Acer saccharinum*—Soft Maple  
*Catalpa speciosa*—Northern Catalpa  
 (south)  
*Fraxinus pennsylvanica lanceolata*—Green Ash  
*Juglans nigra*—Black Walnut  
*Platanus occidentalis*—Sycamore (south)  
*Populus alba*—Silver Poplar  
*Quercus macrocarpa*—Bur Oak  
*Ulmus americana*—American Elm

### SMALL TREES

#### Class No. 1

*Elaeagnus angustifolia*—Russianolive  
*Prunus americana*—American Plum

#### Class No. 2

*Malus baccata*—Siberian Crabapple  
*Morus alba tatarica*—Russian Mulberry  
*Rhus typhina*—Staghorn Sumac  
*Salix amygdaloides*—Peachleaf Willow  
 (south)

### IN WISCONSIN

The Wisconsin Conservation Commission made this statement in March: "You are now subject to arrest if you throw anything on or along any public highway, parkway or railroad right of way anywhere in the state under a new law enacted by the last legislature."





*Acer saccharinum*, *Silver or Soft Maple*

## TREES FOR COLORADO

*Acer campestre*, HEDGE MAPLE—  
Beautiful small tree, hard to establish.

*Acer ginnala*, AMUR MAPLE —  
Nice small tree with brilliant red fall color.

*Acer glabrum*, ROCKY MOUNTAIN MAPLE — Makes a nice hardy, small tree.

*Acer negundo*, BOXELDER—Short-lived native tree. Useful where nothing else will grow. Susceptible

to damage by insects and diseases, and of ragged appearance when older.

*Acer platanoides*, NORWAY MAPLE — Difficult to establish and subject to sunscald, but with favorable conditions it makes a fine tree.

*Acer platanoides*, CL. SCHWEDLER MAPLE — Leaves red in spring. Very beautiful but slow growing and hard to establish.



*Acer pseudoplatanus*, PLAIN TREE MAPLE—Difficult, as two above.

*Acer saccharinum*, SILVER or SOFT MAPLE—A clean and beautiful tree. Of medium fast growth. Has few pests. Likes rich moist soil. Shallow roots. Subject to chlorosis in alkaline soils.

*Acer saccharinum*, CL. CUTLEAF WEEPING MAPLE — A little more difficult to establish, but makes a beautiful tree of rather "light" effect when given favorable conditions.

*Acer saccharum*, SUGAR or HARD MAPLE — Similar to Norway Maple. Good fall color.

*Aesculus glabra*, OHIO BUCKEYE —A tree hard to establish, but of beautiful shape and very attractive in flower.

*Aesculus hippocastanum*, COMMON HORSECHESTNUT — More attractive bloom and shape than the Buckeye, but not as easily established.

*Aesculus octandra*, YELLOW BUCKEYE — Symmetrical shape, large flower heads. Slow growing and hard to transplant.

*Ailanthus altissima*, TREE OF HEAVEN—Will grow under difficult city conditions of smoke and poor soil. Attractive foliage and fruit. Suckers from the roots, weedy growth.

*Alnus glutinosa*, EUROPEAN ALDER—Only a few trees have been successful here.

*Alnus tenuifolia*, Thinleaf or MOUNTAIN ALDER—Easily trained as a tree. Very hardy and attractive.

Winter buds and last year's seed "cones" of the Mountain Alder







*Birch Tree*

*Western Catalpa*



*Betula fontinalis*, Water or ROCKY MOUNTAIN BIRCH—Beautiful cherry-like bark. Makes a neat and hardy tree.

*Betula papyrifera*, PAPER BIRCH—Has only been tried by a few, but has been rather successful in most places. Clean white bark.

*Betula pendula*, EUROPEAN WHITE BIRCH — Seems to be more difficult than the cutleaf form. Subject to borers and disease.

*Betula pendula*, Cl. CUTLEAF WEEPING BIRCH — Beautiful, clean, light tree. In a class by itself. Difficult to establish and sensitive to severe drouth. Has some serious pests.

*Betula populifolia* GRAY BIRCH—Small irregular tree with gray-white bark.

*Caragana arborescens*, SIBERIAN PEASHRUB — Fine foliage and small yellow flowers. Very hardy and drouth resistant. Usually a large shrub.

*Carpinus betulus*, EUROPEAN HORNBEAM — Slow growing, clean tree. Difficult to start. Needs well drained soil.

*Catalpa bignonioides*, Cl. UMBRELLA CATALPA—A small formal tree. Likely to winterkill in bad seasons.

*Catalpa ovata*, CHINESE CATALPA—Interesting and beautiful tree. Smaller than Western Catalpa.

*Catalpa speciosa*, NORTHERN or WESTERN CATALPA — Loved because of its beautiful flowers, large leaves and picturesque seed pods. Hated for its dropping flowers, pods and leaves. Has irregular habit of growth and winterkills to the ground often when young.



*Celtis occidentalis*, COMMON HACKBERRY—A slow-growing, drouth-resistant tree. Difficult to establish and sometimes has leaf galls. Survives storms and attacks of pests.

*Cercis canadensis*, EASTERN RED-BUD—Very early rosy-pink flowers. Partly winter-tender.

*Cladrastis lutea*, AMERICAN YELLOWWOOD — Uncommon tree here, but is hardy in some locations.

*Crataegus coloradensis*, COLORADO HAWTHORN — Slow growing but long lived. Beautiful in flower, fruit and foliage.

*Crataegus crusgalli*, COCKSPUR HAWTHORN—Distinctive low, round-headed shape. Dark red fruit, small but numerous and hang on all winter.

*Crataegus mollis*, DOWNY HAWTHORN—Good as a tall shrub or single-stemmed tree. Large red fruit in fall.

*Crataegus oxycantha*, ENGLISH HAWTHORN — Beautiful cut leaves, white flowers and red fruit. Most subject to blight.

*Crataegus oxycantha*, Cl. PAULS SCARLET THORN — Very attractive double red flowers, when it does bloom, but subject to blight and difficult to establish.

*Crataegus phaenopyrum*, WASHINGTON HAWTHORN — Nice shape and leaf. Good for Colorado. Red fruit remain all winter, similar to Holly.

*Crataegus punctata*, DOTTED HAWTHORN — Good flowers and fruit. Hard to transplant and slow growing.

*Crataegus saligna*, WILLOW HAWTHORN—A native species with black fruit and narrow leaves.



*Distinctive gray, corky bark of the Hackberry tree*



*Common Native Hawthorn, Crataegus succulenta*



*Crataegus mollis, the tree-like Downy Hawthorn*





*Elaeagnus angustifolia*, **Russianolive**

*Elaeagnus angustifolia*, **RUSSIAN-OLIVE**—A tree with picturesque habit of growth and attractive silver leaves. Useful for foliage contrasts. Very hardy and adaptable to many uses.

*Euonymus europaeus*, **EUROPEAN EUONYMUS**—Attractive orange and red fruit hangs on late. Usually quite hardy.

*Fagus sylvatica*, **EUROPEAN BEECH**—A beautiful tree in the east but most unhappy in our soil and climate.

*Gleditsia Triacanthus*, **Honeylocust**



*Fraxinus americana*, **WHITE ASH**—A stiff “heavy” tree. Slow growing and will stand much abuse. Not as hardy as green ash, but better shape.

*Fraxinus pennsylvanica lanceolata*, **GREEN ASH**—Preferred by most horticulturists to other species of ash. Drought resistant. Irregular shape.

*Ginkgo biloba*, **GINKGO**—The most ancient of trees, unusual fan-shaped leaves. Usually very difficult and unhappy here.

*Gleditsia triacanthus*, **HONEY-LOCUST**—Probably the best all-around tree for this area. A little hard to move and slow to grow, but will survive under difficult conditions. The species has large compound thorns, but there is a thornless variety which is preferred by many. Tiny flowers and large seed pods. Thin shade. Interesting shape. The Moraine Locust is a thornless and podless type.

*Gymnocladus dioica*, **KENTUCKY COFFEETREE**—Deep rooted and slow growing. Makes a nice shaped tree of bold appearance.

*Juglans cinerea*, **BUTTERNUT**—Extremely slow growing and difficult to become established.





*Interesting seed pods of the  
Goldenrain tree*



*Kentucky Coffeetree*

*Juglans nigra*, EASTERN BLACK WALNUT — Deep-rooted, slow growing and of bold appearance. Bears edible nuts. Should be moved when small. Pest free.

*Juglans rupestris*, TEXAS BLACK WALNUT — More hardy and rapid growing than Eastern Black Walnut. Very small nuts. Deep-rooted and hard to transplant.

*Koelreuteria paniculata*, PANICLED GOLDENRAINTREE — Kills back frequently, but once established makes a wonderful show of flowers and fruit.

*Larix* sp., LARCH — A deciduous conifer. Beautiful, "light" effect, especially in spring. Hard to get established.

*Liriodendron tulipifera*, TULIPTREE — There have been many attempts to raise this tree, with few successes. Unusual shaped leaves and tulip-like flowers.

*A young Tuliptree in Boulder*

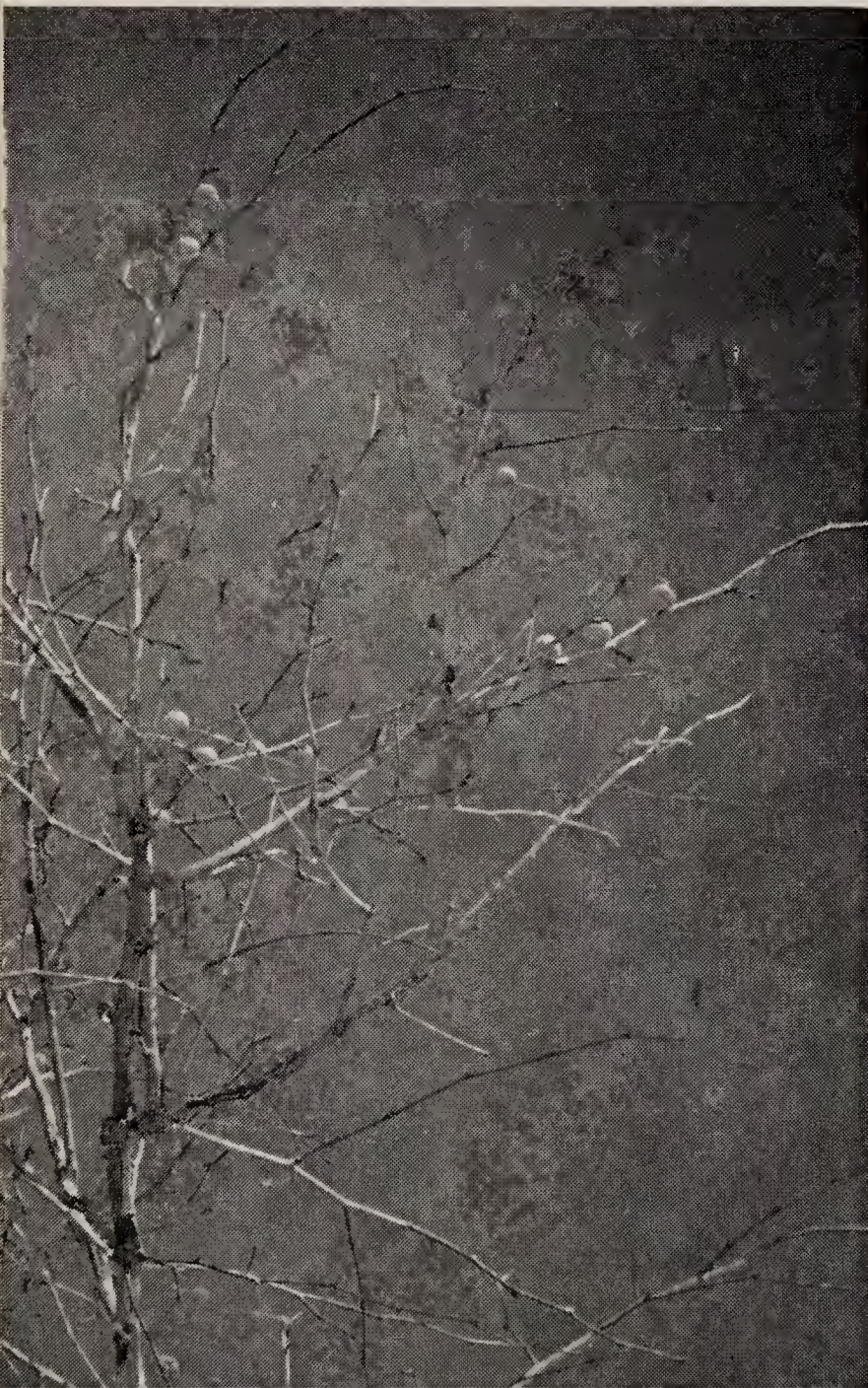






*Young Hopa Crabapple*

*Seed balls of the Sycamore tree*



*Malus*, CRABAPPLE — (Including Arnold, Carmine, Parkman, Tea, Aldenham, Scheidecker and other similar species and varieties.)— Beautiful flowers and interesting fruits. Winterkill and blight.

*Malus*, sp., Cl. DOLGO CRABAPPLE—White flowers and brilliant red apples which are as good for jelly as they are good to look at. One of the hardiest and blight resistant. Good to use for espalier.

*Malus*, sp., Cl. HOPA CRABAPPLE —One of Prof. Hansen's best developments. Beautiful rose-red flowers. Fruit very small. Narrow upright habit of growth. Very hardy and blight resistant.

*Malus* sp., Cl. RED-SILVER CRABAPPLE—Leaves green above and red silvery below. Very attractive rose-red bloom and large fruit.

*Malus baccata*, SIBERIAN CRABAPPLE — Has been considered a dependable tree for fruit and flowers, but lately has been badly damaged by blight.

*Malus floribunda*, JAPANESE FLOWERING CRABAPPLE — Very beautiful pink flowers. Subject to fireblight damage.

*Malus ioensis*, Cl. BECHTEL CRABAPPLE—When in full bloom the large double light pink flowers almost cover the tree. No fruit. The faded petals hang on for a long time making a dirty effect.

*Malus ioensis*, PRAIRIE CRABAPPLE—The parent of the Bechtel. Single light pink flowers which fall when faded. Variable in habit but always beautiful.

*Malus pumila*, Cl. NIEDZWETZKYANA CRABAPPLE—The Red-vein Crab. Usually hardy and attractive here.

*Malus purpurea*, Cl. ELEY CRABAPPLE — Light rose-red bloom. Somewhat similar to Hopa but more spreading habit of growth. Quite hardy.





*Picturesque bare limbs of cottonwood against a winter sky*

*Morus alba*, Cl. WEEPING MULBERRY—A formal “upside-down” tree. Frequently kills back.

*Morus alba tatarica* and *rubra*, RUSSIAN AND RED MULBERRY—Attractive foliage and fruit. Fruit edible by birds and man, but may become a nuisance. Often partly winterkills.

*Platanus occidentalis*, SYCAMORE or AMERICAN PLANETREE—Slow growing and kills back frequently when young. When established it makes a beautiful large tree. Subject to chlorosis in alkaline soils.

*Populus acuminata*, lance leaf or SMOOTHBARK POPLAR — Of neat and clean appearance and rather upright growth. Fast growing and shallow roots.

*Populus alba*, Cl. BOLLEANA POPLAR—Has been the most popular of the columnar type poplars but is hardly worthwhile planting now as it is susceptible to borer and

blight damage. As with all poplars it is a rank feeder and robs surrounding areas of food and water.

*Populus alba*, Cl. SILVER POPLAR—Often wrongly called “Silver Maple” because of the maple shaped leaves. Light green, smooth bark and a large spreading habit. Will grow where few other trees will survive. Sometimes suckers from the roots.

*Populus angustifolia*, NARROW-LEAF POPLAR—Will grow all over but chiefly valuable at higher altitudes.

*Populus deltoides missouriensis*, BALSAM POPLAR—A small native from higher altitudes. Will grow here but not as good as others.

*Populus canadensis eugenei*, CAROLINA POPLAR — Extensively planted a few years ago. Furnishes quick shade but soon begins to go bad. Native cottonwood is better.



*Populus grandidentata*, BIGTOOTH ASPEN — A larger sized eastern Aspen.

*Populus nigra*, Cl. LOMBARDY POPLAR—The familiar upright poplar of old gardens. Subject to attacks of scale and disease.

*Populus sargentii*, Plains Poplar or WESTERN BROADLEAF COTTONWOOD—The most distinctive native tree of this area. Must have plenty of room as it soon grows large and spreading. Grafts or cuttings from male or staminate trees should be used to start all cottonwoods to avoid the objectionable cotton. Shallow rooted.

*Populus simoni*, CHINESE or SIMON POPLAR — Of upright shape similar to Bolleana and Lombardy. Some think it is better, but it still has all the faults of the poplars.

*Populus tremuloides*, QUAKING ASPEN—A beautiful native but is difficult to transplant and very subject to attacks of scale.

*Prunus americana*, AMERICAN PLUM—A shrub or tree of low rambling habit. Beautiful in flower and sometimes bears good fruit.

*Newport Plum used as a small street tree*

Very hardy and useful for thickets and backgrounds.

*Prunus americana*, Cl. NEWPORT PLUM—A striking red-leaf variety. Small pink flowers and edible fruit.

*Prunus cerasus* var. SOUR CHERRIES—The variety Montmorency, in particular, makes a beautiful low-headed tree. Flowers are nice and fruit is very useful.

*Prunus serotina*, BLACK CHERRY —when established it makes a tall clean tree. Tender bark and difficult root system makes it hard to move when large. Good bloom and flowers.

*Prunus sibirica*, SIBERIAN APRICOT—Attractive foliage, flowers and sometimes fruit. Blooms so early that fruit is often killed.

*Quercus alba*, WHITE OAK—Very slow growing and hard to move.

*Quercus coccinea*, SCARLET OAK —Requires a rich, slightly acid soil. Very beautiful especially in fall color.

*Quercus falcata*, SOUTHERN RED OAK — Difficult, but beautiful when established. Good fall color.

*Quercus macrocarpa*, BUR OAK—A sturdy bold tree. Of slow growth, but tolerates our soil better than other oaks. No fall color.

*Quercus palustris*, PIN OAK — As with all of the black oak type, this one does not like our soil, but when conditions are suitable it makes a beautiful tree with good fall color.

*Quercus robur*, ENGLISH OAK—A few specimens have become established around Denver and are doing well.

*Rhus typhina*, STAGHORN SUMAC—Easily trained as a tree. Very easy to grow, but shallow-rooted and short-lived. For quick temporary effects.





*Robinia neomexicana*, NEW MEXICAN LOCUST—Attractive pink flowers. Quite hardy and easy to grow. Soon damaged by locust borers.

*Salix alba*, WHITE WILLOW—All the willows are rank feeders and will choke out adjoining plants and stop up sewer lines. Most are short lived and subject to storm damage and insects.

*Salix alba vitellina*, YELLOWSTEM WILLOW—Striking for its winter color.

*Salix amygdaloides*, PEACHLEAF WILLOW—A low native willow for moist places where other trees will not grow.

*Salix babylonica*, BABYLON WEEPING WILLOW—A striking weeping kind.

*Salix babylonica*, Cl. GOLDEN WEEPING WILLOW—The most beautiful of the willows. Planted by water in large grounds it is very effective, but it is too rank a grower for most city yards.

*Salix blanda*, WISCONSIN WEEPING WILLOW—Similar to above but green barked.

*Salix lasiandra*, PACIFIC WILLOW—The large willows naturalized years ago near Boulder have been identified as this species.

*Salix nigra*, BLACK WILLOW—A native tree of stream banks.

*Salix pentandra*, LAUREL WILLOW—Attractive glossy leaves. Has all the faults of other willows.

*Sophora japonica*, JAPANESE PAGODATREE—Attractive leaves and flowers. Several are established in Denver parks.

*Sorbus americana*, MOUNTAIN-ASH—A beautiful tree when established. Subject to sunscald and blight.

*Sorbus aucuparia*, EUROPEAN MOUNTAIN ASH—One of the most attractive small trees for use in Colorado. Neat appearance with rather vertical habit. Heads of white flowers and very attractive

*Attractive leaves of the Red Oak*







*Leaves and fruit of a Linden tree*

*Linden trees are good for street planting*



orange-red fruits. Tender bark of trunk must be shaded when young.

*Sorbus hybrida*, OAKLEAF MOUNTAINASH—Similar to European mountainash but has entire leaves.

*Syringa japonica*, JAPANESE TREE LILAC—A clean small tree of slow growth and very hardy. Large heads of creamy white flowers.

*Tilia americana*, AMERICAN LINDEN—One of our most beautiful trees in leaf, bark and shape. Has tender bark, so should be protected for some time after transplanting.

*Tilia cordata*, LITTLE LEAF LINDEN—Some think this is the best of the lindens, but it is not well known. Dense, slow growth.

*Tilia europaea*, EUROPEAN LINDEN—More tender barked than the American, but usually a better shape. A beautiful tree.

*Ulmus americana*, AMERICAN ELM—Our most common shade and street tree. Must be regularly sprayed to control elm scale, and sometimes is bothered by aphids, but still is one of our best trees.

*Ulmus americana*, Cl. AUGUSTINE—A new vertical form which will help take the place of the upright poplars.

*Ulmus procera*, ENGLISH ELM—More upright and symmetrical than the American. Less subject to breakage but sometimes sends up suckers from the roots. Subject to attacks of elm scale.

*Ulmus pumila*, CHINESE or SIBERIAN ELM—Has been our most popular elm for several years, but is losing favor because of its breakage in storms. Grown slowly under dryland conditions it makes a good tree. With irrigation it grows very rapidly and must be carefully trimmed each year to avoid storm damage.



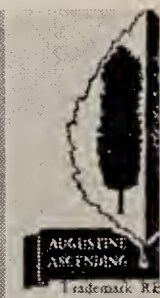
*Ulmus thomasi*, ROCK or CORK ELM—Similar to English elm but with corky bark.

*Xanthoceras sorbifolium*, SHINY-LEAF YELLOWHORN or CHINESE CHESTNUT — Attractive flower, fruit and foliage. Somewhat like sumac or mountain ash. Several are well established in Denver parks.

*Upper Right: An American Elm tree is beautiful even in winter*

*Lower Right: The new Augustine ascending Elm*

*Below: Shinyleaf Yellowhorn*





## SHOULD A NURSEYMAN EXPLAIN THE SECRET OF RAISING DELPHINIUM FROM SEED

By HELEN FOWLER

**W**HAT secret? There is no trick in raising Delphinium from seed, in fact this is the only way to have enough of this valuable plant for our gardens. I am asked, "Is that why I have to pay so much for my Delphinium plants?" Let's see.

The seed bed may be in the open ground in a cold frame or a flat may be used. The soil cannot be prepared too carefully; this preparation requires more understanding than work.

If seeds are planted in the autumn or early fall, the soil must be such as to carry on the sensitive baby plants all winter. It should be made up as follows: 2 parts good soil, 1 part leafmold and 1 part sand (more sand if soil is on the heavy side). Heavy soil should not be used for the germination of any seed, whatever. Of course this combination need not be exact. The average gardener uses a flat and in this case the soil should be brought to within one inch of the finished surface, which might be sprinkled with a light mixture of charcoal and sulphur. I do not always use this latter but it is best to do so.

Before planting, the soil should be leveled and made very smooth and peppery fine, making it neither too wet nor too dry but just moist. Something very important follows so read carefully—it relates to the amount of soil which should be used to cover the seed.

Use just enough so that the first watering, which should be heavy, shall not expose the seed. Burlap is excellent for a covering. After this first watering it is well to raise the

burlap to be sure all seeds are covered. If any should be discovered, add enough sand to cover and pat down with palm of the hand. It takes from 2 to 4 weeks for Delphinium to germinate in Colorado. Around this time, you might look under the burlap again to see what is happening. You will find perhaps half have germinated.

Do not allow burlap to remain on too long for if you wait until you feel all seeds should be up, those coming through first will have grown too tall and will have penetrated the burlap and when covering is removed, these plants will come up with it, incurring thereby a big loss. You may expect the rest of the seeds to come through, even after cover is taken off, with careful watering. If fresh seed has been used, a high percentage of germination might be looked for.

You see now that it is not in the raising Delphinium from seed where the cost lies for the nurseryman—it is from this time on—he must know just when seedlings should be moved, understand the basic elements of the soil and in what proportion they should be used, what mulching really means to the plants and should he aim at tall plants or fine flowers or both; he must know all of the details of Delphinium culture and fully understand every principle of plant growth.

Perhaps you can see now what it costs the grower to raise a fine Delphinium plant, to produce a young, virile, two-year-old clump, ready to give all its beauty to the buyer its first year in his garden.



## LIST OF BOOKS JUST RECEIVED AT THE LIBRARY

By HELEN FOWLER

**"THE New Tree Experts Manual** by Fenska—A ready reference of directions, facts and figures.

**"Amaryllis and How to Grow Them"** by Peggie Schulz.

**"Gloxinias and How to Grow Them"** by Peggie Schulz. These two plants are brilliant, colorful and handsome for your window garden. You are told how to make them bloom, and continue blooming.

**"Flower Arrangements for Churches"** by Adelaid B. Wilson, explains the principles of color and design in relation to church architecture. The author has had long experience in church work. Her anecdotes add a light touch to her fine advice. For every type of church and every season. Many photographs demonstrate problems and their solutions.

**"How to Know the Grasses,"** by Richard Pohl. New. Here are illustrated nearly 300 kinds of grasses—those that we are most likely to meet. You will be thrilled by this book. It has a fine index and a pictured glossary.

**"Southwest Gardening"** from the University of New Mexico Press, written by Rosalie Doolittle and Harriett Tiedebohl. It took 3 years to get this work out. This book is different, and filled with fine lists. Many things mentioned will apply to our area.

**"The Garden of Bellflowers"**—You can guess this is by L. H. Bailey. He explains the culture of bellflowers, identifies and describes every bellflower available for garden use in the United States. It is new, 1953, from Macmillan.

**"History of the Rose,"** by Roy E. Shepherd. What the publishers say

of the author should tell us what to expect of this book, "Roy E. Shepherd is eminently qualified to write this authoritative history. . . . In his garden at Medina, Ohio, he has grown practically every existing species of rose, as well as many old and modern hybrids. He has also done considerable hybridizing himself. This book has been produced through a combination of personal experience and extensive research." This is the most complete history of the rose ever to appear in a book, with over 6 pages of the most suggestive bibliography. The author has the largest collection of both new and old catalogues in existence. It is just out, from Macmillan. 1954.

**"Principles of Nursery Management,"** written by a professor of Horticulture at Oregon State College, Willis Pierre Duruz, a great specialist in his field. This book is written as a guide to the practice and study of management. Seasonal operations have been stressed—the preparation of the ground and planting in spring, digging and grading in autumn, storing and shipping in winter. An exceptionally helpful edition for the man in the nursery business. New.

**"Vegetation and Watershed Management"**—A conservation foundation study. By E. A. Coleman, chief in a special division of the United States Forest Service. An appraisal of vegetation management in relation to water supply, flood control and soil erosion. Late 1953.

Sunset **"Patio Book"**—How to plan a garden living room, ideas for patio building and lanais. Excellent, new.

Sunset **"How to Build Walls,**



Walks, Patio Floors," full of fine illustrations, 314.

Sunset "The Portable Garden," how to grow garden plants in pots, tubs and plant boxes. You will want to have for your very own these three, fine, inexpensive books. Heavy paper covers.

If you are looking for a "Complete Book of Bulbs" it is F. F. Rockwell's and Esther Grayson's, his wife. This book not only tells you how to succeed with these bulbs, but shows you how. The details of planting, planning and culture are so clearly presented that even the beginner can readily follow them. The authors' garden at Nyack, New York, has long been famous for its displays of daffodils, tulips and about every other bulb. Mr. Rockwell has served as editor in chief of *The Home Garden* magazine, was for ten years garden editor for the *New York Times* and has written over twenty garden books.

"The Concise Encyclopedia of Favorite Flowers"—A full reference to over 100 annuals, biennials and bulbs chosen for their garden beauty. It is edited by Montague Free. The common and botanical names of each genus, species and variety together with a unique phonetic key to pronunciation is given. There are some charming wash drawings of the choicest blossoms.

"House Plants"—Everyday questions answered by experts, two well-known editors, Rockwell and Free. The name of this book indicates what you may expect.

"Modern Roses IV," by McFarland. Can you imagine the non-technical descriptions of 6150 roses. The very latest edition of the Rose Directory consulted by rosarians for a quarter of a century. Includes not only modern roses, but also varieties that are of historical and botanical value.

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See that any summer-flowering bulbs have not started into growth from dampness or heat. They should be stored in a dry place with a temperature of about 45 degrees to hold them back.

The TALMUD is the body of Jewish civil and canonical law. From the TALMUD, "Thy friend has a friend and thy friend's friend has a friend: be discreet."—H. F.

Inscription on the wall of Andrew Carnegie's library:

He that cannot think, is a fool,  
He that will not, is a bigot,  
He that dare not, is a slave.

—H. F.

Prayer of the British mariner:  
"Save us, O God, Thine ocean is so large, and our little boat so small."

—H. F.

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## THE DINOSAUR MONUMENT SITUATION

By GEORGE W. KELLY

**T**he last Congress closed without passing the Upper Colorado water control bill, and those who wanted it to pass say that the opposition of conservationists to the inclusion of the Echo Park dam in the bill is the thing that caused its defeat. They blame us for delaying the important program for the control and use of water from the Upper Colorado basin. They are right in that the conservationists blocked this bill, but they have only themselves to blame for ever including dams in our National Monuments in the program.

This bill might have passed with the help of these same conservationists, who are people that appreciate the conservation of water, if this unnecessary dam had not been included. It might have passed without their ever questioning the feasibility of other features, such as the possibility of producing power cheaper from coal, oilshale, or atomic power before these expensive dams could be built; or the practicability of providing irrigation water, at government expense, to land which, after the water was on it would be worth only a fraction of the cost, or the effectiveness of large dams on the lower rivers as compared to smaller dams higher upon the streams that might also be valuable for local irrigation.

The fact still remains that it is not necessary to build dams in the Dinosaur National Monument to have all the control of our water that is needed. They have never given one valid reason for doing this. The argument of excessive evaporation in other sites has been proven false and gives serious doubt to other claims

made. The statement that the Echo Park dam would be a "key" dam on which the whole project depended has never been satisfactorily explained. When their plans call for selling power produced at this dam for about what it costs to produce it, it is difficult to figure how it can be made to pay even its own way, much less that of any other dams.

The recent claims that all the opposition to the dams is led by California people so that they may get more of the water that rightfully belongs to Colorado are made just to divert people from the real facts. Commercial interests in California may want more water, just as commercial interests in Colorado and Utah would ruin a fine National Monument to build dams, but the real fight against the dam was led by the Sierra Club which is a mountain and conservation club of national membership and NOT interested in California's commercial development.

The argument is still being made that flooding these canyons of the Green and Yampa would not destroy their scenic or recreational value or would even increase their values. This is such a ridiculous claim that one has cause to question the intelligence of those making it. National Parks and Monuments were set aside largely to preserve, unspoiled for all time, sections of our country which are outstanding in some natural or scenic value. The value of these canyons is in their naturally flowing streams, and rapids and the primitive wildlife and the impressive cliffs that surround them. To say that flooding only 9% of these canyons would not



alter their value is comparable to saying that one might put out another's eyes and he would be little damaged because the eyes only constitute 1% of his body.

All good citizens who love their state and country should keep up the fight to preserve these canyons in the Dinosaur Monument.

*Write your congressmen, and ask others to do so.*

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December, 1954

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# *The Green Thumb*

COLORADO'S GARDEN MAGAZINE



11 YEAR INDEX 1944-1954



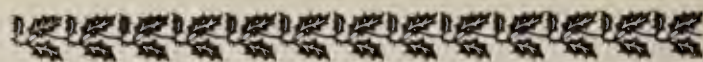
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# The Green Thumb

Vol. 11

DECEMBER, 1954

No. 12



## Colorado Forestry and Horticulture Association

Organized in 1884

"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to make available correct information regarding forestry, horticultural practices and plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."

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## 11-YEAR GREEN THUMB INDEX

THIS index includes all the material used in the Green Thumb since its beginning in 1944 to the present (December, 1954). Use this list to look up any subject that you may be interested in. Almost everything relating to Gardening or Conservation in the state is included somewhere in the back copies of the last 11 years.

Many of these back issues are available to members at 25c a copy. Some very old issues are out of print. Some members will want to get back copies that they have mislaid and make up a year's edition to be bound.

If you have a friend that needs information on Trees, Lawns, Landscape Design, Aphids or Tuberous Begonias send for the issues containing articles on these subjects and present to them. It may save them many dollars and much disappointment to know how to handle these things right.

Under each subject-head the items are listed chronologically. An illustrated article is indicated by \* and illustrations only are in italics. The extent and importance of the articles are indicated by the last figure which gives the number of pages in length.

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*Italics indicate illustrations only.*



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Keegan's Lilac Lane, S. R. DeBoer	July '53	23	3 $\frac{3}{4}$
What Does Columbus Have That We Don't Have?	Aug. '53	18	2 $\frac{1}{2}$
Over 160 Varieties, S. R. DeBoer	Aug. '53	29	3 $\frac{3}{4}$
Andrew's Memorial Arboretum (Well illustrated)	Oct. '53	24	6
Denver Botanic Garden, Rose Garden Section, Plan	Apr. '54	36	2
A Denver Rose Garden, S. R. DeBoer	Apr. '54	35	1
What We Need in our Botanical Garden, M. Walter Pesman*	June '54	24	4
What is a Botanical Garden, Quotations	Aug. '54	9	1

## BIOGRAPHIES

D. M. Andrews*	May '44	10	2
Samuel D. Waldren	May '44	13	1 $\frac{1}{4}$
Aven Nelson, by Kathryn Kalmbach*	Sept. '44	10	2
Mrs. C. M. Richards	Sept. '44	12	1 $\frac{1}{2}$
Col. Edgar Tarbell Ensign, by W. J. Morrill	Nov. '44	12	1 $\frac{1}{2}$
Chas. Reno Root, by Howard F. Roerig*	Jan. '45	12	1 $\frac{1}{2}$
William Newton Byers, by Olive Hensley*	Mar. '45	7	3 $\frac{1}{4}$
Adam Kohankie, by S. R. DeBoer	May '45	10	1 $\frac{1}{2}$
W. J. Ise, by L. C. Shoemaker	Sept. '45	14	1 $\frac{1}{2}$
G. A. Klaiber*	Sept. '45	18	1
George Beach	Nov. '45	8	1 $\frac{1}{2}$
Walter H. Schrader, by R. G. Colwell	Jan. '46	12	2
Mr. and Mrs. M. J. Webber, by Anna S. Mellen	Mar. '46	15	2 $\frac{1}{2}$
Col. Allen S. Peck	Mar. '46	21	1 $\frac{1}{4}$
Al Coffin, by S. R. DeBoer	Nov. '47	28	1
Orchids to George A. Carlson	Feb. '48	3	1 $\frac{1}{2}$
Orchids to Helen Fowler	Mar. '48	2	1 $\frac{1}{4}$
Orchids to Kathryn Kalmbach	Apr. '48	28	1 $\frac{1}{4}$
Orchids to Anna Garrey	May '48	2	1 $\frac{1}{2}$
Orchids to S. R. DeBoer	June '48	2	1 $\frac{1}{2}$
Alfred Rehder, One of the Country's Foremost Horticulturists, by E. D. Merrill	July '48	10	1 $\frac{1}{4}$
Orchids to Mrs. Charlotte A. Barbour	July '48	3	1 $\frac{1}{2}$
Orchids to Robt. E. More	Aug. '48	2	1 $\frac{1}{2}$
Orchids to Mrs. Kathleen Marriage	Sept. '48	3	1 $\frac{1}{4}$
Colorado Horticultural Pioneers*	Sept. '48	16	2
To Our Friend, John H. Gabriel, by M. Walter Pesman	Sept. '48	31	1 $\frac{1}{2}$
John Y. Brown's Monument	Oct. '48	2	1 $\frac{1}{2}$
Orchids to Milton J. Keegan	Oct. '48	3	1 $\frac{1}{4}$
Orchids to Claire Norton	Nov. '48	3	1 $\frac{1}{4}$
Orchids to Fred R. Johnson	Dec. '48	2	1 $\frac{1}{2}$
Wm. H. Lucking, Jr., Green Thumb	Jan. '49	2	1 $\frac{1}{2}$
Mrs. Lewis Bliss Shelby, Green Thumb	Feb. '49	2	1 $\frac{1}{2}$
J. D. Long	Feb. '49	19	3 $\frac{3}{4}$
Max Bauer	Mar. '49	23	1 $\frac{1}{2}$
Mr. and Mrs. John W. Newman	Apr. '49	19	1 $\frac{1}{2}$
William W. Wilmore	Feb. '50	24	1 $\frac{1}{4}$
Milton J. Webber	Jan. '51	32	1
Col. Allen Steele Peck	Mar. '51	26	1
Edward P. Neiman	Aug. '51	30	1 $\frac{1}{4}$
Charles Ott—Nature Lover	Oct. '51	32	1
Aven Nelson	June '52	36	3 $\frac{3}{4}$
John W. Newman	June '52	37	1 $\frac{1}{2}$
This is Daisy Hastings, by Sue Kelly	Sept. '52	17	3 $\frac{3}{4}$
Who Duzzit? Charlotte Barbour, by Sue Kelly	Nov. '52	27	3 $\frac{3}{4}$
Clarence F. Leach, An Unusual Man, by S. R. DeBoer	Dec. '52	38	1 $\frac{1}{2}$
Who Duzzit, Vella Hood Conrad	Apr. '53	7	1



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Lady Eve Balfour, Soil Conservationist.....	May '53	42	1
Mrs. Beverly Finch.....	Nov. '53	21	1/4
Edgar C. MacMechen.....	Dec. '53	35	1
Everett O. Nord, Rosarian.....	Apr. '54	13	1/2
Jacob V. Schaetzel, Daddy of Men's Garden Clubs of Denver*.....	May '54	17	1
Alice Eastwood* .....	May '54	32	3 1/2
Tree Expert Firm Takes on a Partner (Earl Sinnamon).....	July '54	4	1/2
Pioneering (Early life of D. M. Andrews).....	July '54	26	2 1/2
Have You Met Johnny Appleseed Lately,* (George W. Kelly) .....	Aug. '54	9	1
Lemoine Bechtold and His Work with the Genus Hemerocallis, Helen Fowler .....	Sept. '54	20	4 1/2
Resolution (on the passing of Milton J. Keegan).....	Oct. '54	7	1/2

## BIOLOGY AND PLANT GROWTH

You Are Interested in Photosynthesis.....	Jan. '48	19	1/2
Down With the Sap! M. Walter Pesman*.....	Dec. '48	8	3 1/4
Why a Mortality Guarantee.....	Apr. '49	23	3/4
Hormones are Interesting, Prof. Jess Fults*.....	Jan. '50	27	2
The Common Mold, Thos. L. Martin*.....	Apr. '50	8	3 1/2
Sawdust May Increase Soil Acidity.....	Sept. '50	11	3/4
Temperature as a Growth Factor, Alex N. Klose.....	Oct. '50	15	4
Plant Miracle Drug; Colchicine, M. Walter Pesman*.....	Oct. '50	23	2 1/2
When the Irresistible Force Meets the Immovable Object .....	Nov. '50	32	1
Life Out of Death.....	Dec. '50	22	1
Weedkillers May Affect Germination, Dr. R. Milton Carleton .....	Jan. '51	14	1/2
Plant Breeding Possibilities and Techniques for Western Horticulture, Dr. S. W. Edgecombe.....	July '51	10	5
Water as a Growth Factor, Alex Klose.....	Aug. '51	20	4 1/2
Causes of Autumn Color, Shade Tree Digest.....	Oct. '51	25	3/4
What the Plants Are Talking About, Inja Schoo.....	Mar. '52	14	1 1/2
Hardy, But Where? Maude McCormick.....	Mar. '52	29	3/4
What the Well-Dressed Buds Wear, H. D. Harrington*.....	Apr. '52	6	4
Bees, Flowers, and Plant Breeding, Dr. S. W. Edgecombe.....	Apr. '52	14	4 1/2
New Plants—New Fun, Dr. Moras Shubert.....	June '52	16	2
What Do You Know About Roots?*.....	June '52	24	1 1/2
Help! Your Plants Are Drowning! M. Walter Pesman*.....	July '52	10	2
Light As a Growth Factor, Alex N. Klose.....	July '52	12	4 1/2
Better Gardens With Less Water, George W. Kelly.....	Aug. '52	23	1
Good Gardeners Use Restraint, George W. Kelly.....	Sept. '52	16	1 1/4
The Miracle of the Dormant Embryo, Dr. Moras Shubert.....	Dec. '52	32	1 1/4
The Important Five Percent.....	Feb. '53	11	3/4
Let's Get Down to the Root of the Problem, Moras L. Shubert .....	Apr. '54	55	2 1/2

## BIRDS

Attracting the Birds, Enid Ortman*.....	July '45	13	3
Do You Have a Bird Flower Garden? Elsa Laybourn*.....	Nov. '48	8	3/4
Recommended Bird Restaurants.....	Feb. '49	15	1/4
Friendly Relations, Ona Scudder*.....	Apr. '49	16	3 1/2
Fruits Attractive to Birds.....	Feb. '50	23	1/4
Birds in Our Garden, Ruth Ashton Nelson*.....	May '51, 38; June '51, 34; July '51, 28; Sept. '51	32	4
Some Notes from a Bird-Lover, Enid Ortman.....	Jan. '52	9	1/2
Robins, Mrs. Roy Lee.....	Mar. '52	36	1/2
For Our Water-fowl*.....	Mar. '53	13	1/2
My Wild Geese, Marjorie Perry*.....	June '53	44	3
Nature's Winged Beauties, Mrs. H. J. Wagner.....	Nov. '53	12	2



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<b>BOTANICAL RESERVES</b>			
Botanical Reserves Established .....	Sept. '47	3	1
Colorado Botanical Reserves (Colorado Springs).....	Nov. '47	8	2
Colorado Silver Cedar Botanical Reserve Dedicated*.....	Dec. '48	12	3
Beaver Brook Trail, George W. Kelly*.....	May '49	4	2½
M. J. Webber Botanical Reserve*.....	Nov. '49	31	1
<b>BROADLEAVED EVERGREENS</b>			
Broadleaved Evergreens* .....	Dec. '48	4	1½
Adventures with Broadleaved Evergreens (Rhododendrons, Mnt. Laurel, Pyracantha, etc.)*.....	Apr. '50	23	3¼
Rhododendrons for Colorado*.....	May '52	30	1
Two Hardy Broadleaf Evergreens, Ken Wilmore.....	Jan. '54	25	1
<b>BULBS, CORMS, RHIZOMES, AND TUBERS</b>			
Lilies, Kathleen Marriage (Best varieties for Colo.)*.....	May '45	2	1¼
Bulbs, George W. Kelly (Brief List)*.....	Jan. '47	9	¼
Fall Bulbs, Paul Bradford*.....	Nov. '47	22	1½
Try Some Lesser-Known Summer-Flowering Bulbs, George M. Fisher (History and Types)*.....	Apr. '48	22	3
Hardy Plant Material for High Altitude.....	May '48	12	2½
The Tulip, Leslie F. Paull (History and Types)*.....	June '48	10	3
Bakers Dozen of Good Lilies, Claire Norton (Description and Cultural notes)* .....	Sept. '48	22	3½
Tulip Trends, Mrs. F. S. Mattocks.....	Oct. '48	24	2
Indoor Bulbs .....	Dec. '48	25	¼
Tuberous Begonias, J. V. Schaetzel.....	Feb. '49	28	1
Protect Your Gladiolus Corms from Rot, A. O. Simonds.....	June '49	9	1
Lilies for the Perennial Garden, Mrs. Persis Owen (Varieties) .....	Aug. '49	9	½
Some Cultural Suggestions for Tulips, Leslie F. Paull*.....	Sept. '49	23	1
Some Random Notes on Tulips, Anna R. Garrey*.....	Sept. '49	24	3½
This Winter's Mink vs. May's Flowers, J. A. Crouch, Jr. (Tulip-Mania Craze) .....	Sept. '49	28	¾
Tired of Gladioli? M. Walter Pesman (Gladixia, Copper- tip, and Tigerflower)*.....	Apr. '50	26	1½
Tuberous Begonias for the Amateur, A. C. Hackstaff* (Culture) .....	May '50	9	2
The Species Tulips Are Different, L. J. Holland*.....	May '50	26	1½
Three Hardy Bulbs, T. Paul Maslin (Summer Hyacinth, Fritillaria, and Lycoris)*.....	June '50	27	2¼
Considering Lilies, I. Mildred Steele (Their Culture)*.....	July '50	22	2
Considering Lilies, II, Mildred Steele (Varieties)*.....	Aug. '50	10	3½
Plant Miracle Drug, Colchicine, M. Walter Pesman*.....	Oct. '50	23	2½
Colchicum .....	Oct. '50	22	
Bulb Planting .....	Jan. '51	20	1¼
The Not So "Minor" Bulbs, Claire Norton*.....	Apr. '51	16	6
Water Lily Tulip.....	Apr. '51	16	
Grape Hyacinth .....	Apr. '51	16	
Guinea-hen flower .....	Apr. '51	16	
Spring Snowflakes .....	Apr. '51	17	
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Narcissus Sp. ....	Apr. '51	17	
Squills .....	Apr. '51	18	
Crocus .....	Apr. '51	18	
Trillium .....	Apr. '51	18	
Virginia Blue Bells.....	Apr. '51	19	
Calochortus .....	Apr. '51	20	
Tulipa sylvestris .....	Apr. '51	21	



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Spring Beauty from Bulbs, L. J. Holland*	May '51	12	6
Mexican Shell Flower, <i>Tigridia</i>	May '51	17	
Growing Lilies From Seed	July '51	20	3
Bulbs Make Spring Glorious, Helen Fowler	Oct. '51	15	1/2
How to Care for Gladiolus Bulbs	Oct. '51	29	1/4
The Little Wilding Tulips, Mildred Steele*	Oct. '51	36	1
Perennial and Bulb List (Classified as to Use, Height and Season of Bloom)	Apr. '52	19	2 1/2
For Special Spring Beauty Plant Bulbs in the Fall, Helen Fowler	Oct. '52	28	1
How Deep Shall Lilies be Planted, Helen Fowler	Nov. '52	11	1/2
Dutch Bulbs, S. R. DeBoer	Dec. '52	39	1
Lilies	Apr. '53	1,8,59	
Lilies in Colorado, Jan de Graaff*	Apr. '53	9	2
Tulips	Apr. '53	28	
Tulips in the Spring, Evelyn Johnson*	Apr. '53	28	1 1/2
Tuberous Begonias, Phillip Handwerk	Apr. '53	40	1
<i>Tigridia</i>	May '53	19	
How to Grow Gladiolus, William H. Lucking	June '53	15	3/4
Lilies for Colorado, Lemoine Bechtold*	June '53	32	5
Lilies	June '53	33,34,35	
Amaryllis That Bloom Every Year, Elva Nickels	June '53	36	1
Amaryllis	June '53	37	
Some of the Things I Do in Growing Begonias, Gus A. Worker	Sept. '53	7	3/4
Growing Tuberous Begonias in Rocky Ford, Colorado	Sept. '53	14	1 1/4
Plants for the Arkansas Valley	Sept. '53	22	1 1/2
Tulips, Mrs. H. C. Marshall	Sept. '53	27	1
Tulips	Sept. '53	27,30,33	
Hyacinths	Sept. '53	32	
Plant Fall Bulbs to Welcome the Return of Spring, Jeanette Lowe*	Sept. '53	28	6
Crocus	Sept. '53	28	
<i>Chionodoxa</i>	Sept. '53	29	
<i>Narcissus</i>	Sept. '53	31	
Winter Bloom in our Colorado Garden, Ruth Ashton Nelson	Mar. '54	12	2
Early Yellow Crocus	Mar. '54	12	
Squills	Mar. '54	12	
Letters to Sue (about winter bulbs in the garden) Lys Housley	June '54	30	1
Iris, Blue Shimmer	July '54	Front Cover	
Tall Bearded Iris, Don A. Weber*	July '54	12	6
Iris	July '54	13,14,15	
Gardening with Tulips, Evelyn Miles Johnson (Good Varieties)	Sept. '54	24	2
It's Tulip Planting Time, Herb Gundell	Sept. '54	26	2
Daffodil Gardening, Melvin W. Jackson	Sept. '54	28	3 1/2
Daffodils	Sept. '54	29	
Magic Carpet, Fran Duty*	Oct. '54	13	2
Daffodils	Oct. '54	12	1
Spring in Winter, Ruth Ashton Nelson*	Oct. '54	14	1 1/2
Snowflakes for Spring, Helen Fowler*	Oct. '54	34	1

## CACTI AND SUCCULENTS

Just Call Me Spineless, Elizabeth Nixon Eckstein*	Nov. '50	12	2 1/2
Consider the Poor Cactus, D. M. Andrews	Jan. '51	25	1/2
Suckers for Succulents, Elizabeth Nixon Eckstein*	June '51	12	2
Colorado Cacti, M. Walter Pesman* (Complete)	Aug. '51	6	5
Three Species of Sedum*	Mar. '52	24	2



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When is a "Cactus" Not a Cactus? Elizabeth Nixon Eckstein.....	Sept. '52	10	3
Illustrations .....	Sept. '52	10	
The Theme of This Garden is Cactus*.....	Sept. '52	13	3
Cactaceae, L. J. Holland (Complete).....	Oct. '52	8	2¾
Do You Know the Charm of the Desert? Helen D. Stanley*.....	Jan. '53	36	1
Growing Cactus and Succulents in New Zealand, Eric I. L. Jones.....	July '53	34	1¼

CENTRAL CITY

Before the Cry of Gold, Mark and Claire Norton*.....	July '46	3	3
Conspicuous Plants to Look For in the Central City Area* Mark and Claire Norton (List of Wild Flowers).....	July '46	7	7
Central City Gardens, Prudence Bostwick*.....	July '46	14	7
The Opera House Garden, Kathleen Marriage.....	July '46	21	5
Central City and High Altitude Horticulture, M. Walter Pesman* .....	July '46	26	6

CITY FORESTRY

Do We Need a Shade Tree Service? Ernest J. Schreiner.....	Sept. '47	25	2
Colorado Trees (Value of Street Trees).....	Nov. '47	13	1
Colorado Street Trees.....	Nov. '47	16	2
Street Tree Planting (Approved practices)*.....	Feb. '48	18	3
Maintenance of Street Trees (Fertilization, trimming, insect enemies, spray equipment, and chemicals).....	Mar. '48	9	5
Trees for Colorado (Best 10 as selected by Nurserymen).....	May '48	9	1
We Do It in Lansing, Carl Fenner.....	May '48	26	2½
Tree Care in Lansing, Mich., Carl Fenner (Pruning, re- pair, spraying, removal).....	July '48	22	2
A Mayor Appreciates Trees, Frank Ziedler.....	Oct. '48	27	1¼
Franklin Park, Columbus, Ohio*.....	Oct. '48	31	½
Your Trees Are Valuable, George M. Fisher (They should have expert care).....	Dec. '49	16	2
Trees and Safety, George S. Stadler.....	Dec. '51	13	½
Should Reason or Emotion Control the Use and Accept- ance of Ornamental Shade Trees, George S. Stadler*.....	Feb. '53	10	1¼

CITY PLANNING

A Small Town Talks, The Littleton Independent.....	Sept. '47	13	1
New City Entrance for Trinidad.....	Mar. '49	12	1¼
Fort Collins, The Lilac City of Colorado, Mrs. Bertha Peterson .....	May '50	32	½
Another Lilac City.....	June '50	32	½
Boulder, The Arboretum City.....	June '50	37	¼
City Zoning, S. R. DeBoer.....	May '52	15	½
Littleton's Triangle, Mrs. Howard Scowen.....	June '53	42	½
Liberty Statue at Loveland*.....	Aug. '53	7	1
Roadside Planting at Swink.....	Sept. '53	16	1
Rocky Ford Landscapes Its Schools, Mrs. Geo. T. Babcock.....	Sept. '53	12	1
Buck Burshears and The Koshare Indians*.....	Sept. '53	24	2
Community Plants, George W. Kelly*.....	June '54	16	4

CLIMATE AND WEATHER

We Can and Do Make Weather.....	Sept. '46	5	1½
Climatic Differences in Colorado, C. H. Wasser*.....	Aug. '48	4	3½
Climatic Factors Affecting Tree Growth on the High Plains, A. C. Hildreth—Part I.....	Feb. '54	30	4
Climatic Factors Affecting Tree Growth on the High Plains, A. C. Hildreth—Part II.....	May '54	22	2½
My Chief Climate Problem and What I Do About It, M. Walter Pesman .....	June '54	12	1½



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Join the Colorado Forestry and Horticulture Assn. Now.....	May '44	2	1/2
President's Report, Gladys C. Evans.....	Mar. '45	1	1
President's Annual Report, Gladys C. Evans.....	May '46	1	1
Are We Worthy of Your Support, George W. Kelly.....	May '46	22	1
Fore! Robert E. More.....	Nov. '46	1	1 1/2
Membership List .....	July '47	22	9
What Does Your Membership Mean?.....	Sept. '47	31	1
We Are Astounded! Public Doesn't Know Us.....	Nov. '47	4	2
These Things Your Association Has Done.....	Nov. '47	6	1
Membership Drive Successful, Robert E. More.....	Jan. '48	2	1/2
Committees .....	Feb. '48	2	1/2
Highlights from the President's Report for 1947.....	Apr. '48	15	1/2
How May We Help You.....	July '48	2	1/2
Committees .....	Nov. '48	2	1/2
Our Membership Campaign for the New Year.....	Nov. '48	32	1
New Association Insignia.....	Feb. '49	3	1/4
Committees .....	Mar. '49	2	1/2
Auction a Success.....	Nov. '49	32	1
Committees .....	Mar. '50	6	1
Secretary's Report of 1949, Mrs. A. L. Barbour.....	Apr. '50	6	1 1/2
Looking Backward and Forward, George W. Kelly.....	Jan. '51	30	1/2
President's Report, 1950, Mrs. John Evans.....	Feb. '51	6	2
Treasurer and Secretary's Report, 1950, Charlotte Barbour....	Feb. '51	7	1
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Annual Meeting and Dinner.....	Jan. '52	4	1/2
Committees and Directors.....	Mar. '52	4	1
Annual Meeting .....	Mar. '52	9	1
President's Report for 1951, Gladys C. Evans.....	Mar. '52	10	1 1/2
Objectives of the Association, Fred R. Johnson.....	Mar. '52	11	2
An Organized Plan, Vella Hood Conrad.....	May '52	12	1
Treasurer and Secretary's Report, 1951.....	Mar. '52	13	1/2
Committees and Directors.....	Mar. '53	6	1
President's Report for 1952, Fred R. Johnson.....	Mar. '53	9	3
Report of Second Ten-Year Planning Committee.....	Feb. '54	27	3
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An Open Letter to our Members, by Fred R. Johnson.....	Nov. '54	6	1

## COMPOST

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Why Rake? George W. Kelly.....	May '44	3	1
Contented Earthworms Make Contented Gardeners (Humorous) .....	Sept. '44	6	1
Compost, Manures, etc., W. Thomas.....	Mar. '48	21	1 1/2
Use of Peat Moss, John W. Dunfield.....	July '50	14	2
Compost, Manures and Inorganic Fertilizers, Walter Thomas (Very Complete).....	Dec. '50	9	1 1/2
Compost (Methods of preparation)*.....	Dec. '50	13	1
Compost for Better Lawns, Martin Keul.....	Mar. '51	20	1
Compost in Three Months, Clifford F. Dunlap.....	Mar. '51	21	1
How to Make Compost, John W. Newman.....	Mar. '51	21	1
Facts About Organic Gardening, L. H. MacDaniels.....	Nov. '51	14	1
New Compost Accelerators, E. G. Bennison.....	Mar. '53	25	3/4
Why Make Compost, Mrs. Jan Schoo.....	Aug. '53	22	1
Sir Albert Howard's Indoor Composting Method, Mrs. Jan Schoo .....	Dec. '53	28	3 1/2



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Rocky Mtn. Horticultural Conference.....	Nov. '48	28	1/2
Midwestern Shade Tree Conference.....	Jan. '52	4	1/4
Tentative Program for Fifth Annual Conference.....	Feb. '52	4	1
Shade Tree Conference.....	Jan. '53	28	1/2
Shade Tree Conference.....	Feb. '53	6	1
<b>CONSERVATION</b>			
Is Our Colorado Landscape in Danger? J. V. K. Wagar.....	July '44	10	4
Sanctuaries in the Plains, Jules S. Renaud (Conservation possibilities and practices).....	Jan. '45	6	1 1/2
Mount Goliath Nature Study Area, Fred R. Johnson*.....	May '45	12	2
Watersheds and Water Yields of Colorado, John W. Spencer*.....	July '45	1	6
Conservation, What Can I Do About It?.....	Nov. '45	6	1/2
Do We Need State Parks?.....	May '46	15	1
A Good Woodsman.....	July '46	33	1
Quaking Aspen as Seen By the Watershed Researcher, B. C. Goodell*.....	July '47	8	4
How Public Are Grazing Lands, Farrington R. Carpenter.....	July '47	21	1 1/4
Two Acres for Your Life, Milton S. Eisenhower (Impor- tance of soil and water).....	Sept. '47	6	2 1/2
Watershed Planting on the Pike National Forest, Jay Higgins*.....	Sept. '47	22	3
Association Defends National Forests, Gladys C. Evans.....	Jan. '48	20	1 1/2
The Land is for the Living, Morris E. Fonda.....	Feb. '48	21	1/2
Wild Flower Conservation in the Far West, P. L. Ricker.....	June '48	21	1
Conservation.....	June '48	31	1/4
So You Love the Wild Flowers, Florence W. Myers.....	July '48	12	1
Disappearing California Flora, Lester Rowntree.....	July '48	21	1/2
The Good Earth, Elmer Eugene Barker.....	July '48	24	1
President Truman on Conservation.....	Aug. '48	27	1/2
Importance of Conservation.....	Nov. '48	10	6
Friends of the Land Will Organize Chapter in Denver.....	Nov. '48	19	1/2
An Appeal for a Partnership With Nature.....	Dec. '48	31	3/4
Christmas Tree Conservation, Everett J. Lee*.....	Dec. '48	20	3
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Improving the Habitat, Allen S. Peck.....	Jan. '49	28	1
Dynamics of Renewable Resources (Extracts from obser- vations of several authorities).....	Feb. '49	10	6
Wilderness Society.....	Feb. '49	27	1/2
Trees and Civilization, E. Sam Hemming.....	Mar. '49	10	1/2
Conservation Objectives, Geo. E. Brewer, Jr.*.....	July '49	4	1/2
What Does Colorado Need, George W. Kelly*.....	Aug. '49	18	2
I Came, I Saw, I Believed, George W. Kelly*.....	Sept. '49	30	2
Why Teach Conservation, John W. Spencer.....	Oct. '49	25	1
Standards for Proper Christmas Tree Cutting.....	Dec. '49	10	1/2
The Christmas Tree, Erne H. Shubert.....	Dec. '49	9	3 1/2
All Colorado is Our Garden, Carl Feiss*.....	Jan. '50	18	3
Conservation Education, R. H. Eckelberry.....	Jan. '50	30	1
Colorado-Wyoming Academy of Science (Conservation resolutions).....	Aug. '50	5	1
Our Vanishing Bunchgrass, E. D. Sandvig*.....	Nov. '50	21	2 1/2
The Christmas Season Should Be Beautiful, George W. Kelly.....	Dec. '50	17	2
The Izaak Walton League of America, J. W. Penfold*.....	Feb. '51	28	1 1/4
Why Teach Nature? Joe Penfold.....	June '51	14	2 1/4
Pertinent Paragraphs from "Water or Your Life".....	July '51	30	1
Conservation or Restoration, Richard H. D. Boerker.....	Sept. '51	20	1 1/2



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Seeing Is Believing, George Kelly (Water absorption test)*.....	Oct. '51	28	1½
The Positive View.....	Oct. '51	38	1
Do We Love Our Country, Weldon F. Heald.....	Oct. '51	40	1
New Earth Charter.....	Nov. '51	26	½
Buy Tagged Christmas Trees, Bob Nobles.....	Dec. '51	18	1¼
The War of Man vs. Beetles, Don Block.....	Dec. '51	22	1
Stick to Your Guns Secretary.....	Jan. '52	23	½
National Organization .....	Feb. '52	23	¼
Nature Conservation News.....	May '52	15	¼
Big Dam Foolishness, Elmer T. Peterson.....	June '52	13	1
Colorado National Forest From a Sportsman's Point of View.....	June '52	22	2
Wilderness Expeditions Being Organized.....	June '52	30	1
School and Community Forests.....	Oct. '52	23	½
Conservation News, Joseph J. Shomon.....	Oct. '52	25	1
Parks and Wilderness, James Munro.....	Oct. '52	30	1
Green Thumbs Everywhere*.....	Oct. '52	32	1
Conflicting Land and Water Uses.....	Nov. '52	33	½
Our Association Leads in Conservation, Fred R. Johnson.....	Dec. '52	9	2
Brief Summary of Today's Conservation Needs, Mrs. Frank McLister .....	Dec. '52	33	¾
A Protest Against the Burning of Christmas Trees, Lucile Thurmon .....	Mar. '53	13	½
Chuck Ott Writes From Alaska.....	May '53	44	½
Conservation, A New Idea?.....	June '53	21	¼
Conservation Activities, Fred R. Johnson.....	July '53	31	½
Watershed Treatment Concept of Flood Prevention.....	July '53	42	½
Nature's Cathedrals .....	July '53	43	1
The Denver Chamber of Commerce Believed in Conseva- tion in 1909, Fred R. Johnson.....	Aug. '53	34	¾
Let's Go on a Picnic, Hazel N. Abbot*.....	Nov. '53	18	2
Progress in Soil Conservation, Hugh Hammond Bennett*.....	Nov. '53	24	9
Good Outdoor Housekeeping.....	Nov. '53	33	½
Its Up to You! (Christmas Tree Cutting)*.....	Dec. '53	7	1
Try a Living Christmas Tree, The Master Gardener.....	Dec. '53	18	¾
Ft. Collins Pinon Grove Receives National Attention.....	Dec. '53	33	1
Memorial Forests, Fred R. Johnson.....	Dec. '53	34	3
Metropolitan Denver Parks Conservation Committee.....	Dec. '53	40	1
The Time for Action is Now (Dinosaur Monument).....	Jan. '54	4	1
Na Laau Hawaii, George C. Munro.....	Jan. '54	30	1
We Need Wilderness, Sigurd Olson*.....	Mar. '54	35	2
They Work While We Talk (Girl Scouts)*.....	May '54	50	1
Conservation and Outdoor Education in Schools, Roberts Mann .....	June '54	28	1
Litterbugs .....	June '54	29	½
The Outdoor Circle of Honolulu (Clean-up Campaign).....	June '54	31	½
Colorado's Slip is Showing, Hal Hubler*.....	Aug. '54	44	3½
Paragraphs from Policy of Chamber of Commerce, 1954.....	Sept. '54	18	1
Living Pine or Broad Boards, Poet or Lumberman.....	Oct. '54	22	2
What Worth Wilderness, Paul B. Sears.....	Oct. '54	26	1½
The Dinosaur Monument Situation, by George W. Kelly.....	Nov. '54	34	1

## CULTURAL PRACTICES

Why Rake, George W. Kelly.....	May '44	3	1
Contented Earthworms Make Contented Gardeners, John Stockbridge (Humorous) .....	Sept. '44	6	1
Tree Trimming for Colorado, George W. Kelly (Pruning).....	Nov. '44	7	1
Growing Plants Without Soil, A. M. Binkley.....	Jan. '45	14	3
Culture of Alpine Plants under Lowland Conditions, Helen Fowler* .....	Mar. '45	14	4¼



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Of Mice and Worms and Quercus, John Stockbridge (Humorous) .....	Mar. '45	19	1
How to Care for Plants, George W. Kelly (Planting and Maintenance)* .....	Jan. '47	11	4
Maintenance of the Small Yard* .....	Mar. '47	4	2
Lawn Making and Maintenance, Paul Morrow* .....	Mar. '47	6	6
Giants in the Earth, Juel F. Alstad (Earthworms) .....	Sept. '47	11	2
Ignorance in Leaf Burning, Bruce Hutchinson .....	Sept. '47	14	1½
Mulching at Malabar .....	Nov. '47	34	1
No, No, No, Jack Harenberg* .....	Jan. '48	5	½
Proper Maintenance Important for Keeping a Good Design, Julia Jane Silverstein* .....	Jan. '48	31	1
Jack Harenberg Sez. ....	Feb. '48	2	¼
Trees as Living Things, John W. Swingle .....	Feb. '48	8	1½
Horticultural Notes—Maintenance, K. N. Marriage .....	Feb. '48	9	½
Street Tree Planting* .....	Feb. '48	18	3
Maintenance of Street Trees* (Fertilization, trimming, in- sect enemies, spray equipment, and chemicals) .....	Mar. '48	9	5
Mud Pie Test Tells When It's Safe to Spade Garden .....	Mar. '48	31	1
Chlorosis—A Deficiency Symptom, A. F. Hoffman .....	Apr. '48	26	2½
The Worm Turns, M. Ethel Ash .....	May '48	31	1
Air in Soil is Vital as Water to Plant Roots* .....	May '48	35	1
There is Life in the Soil, Thomas L. Martin (Importance of micro-organisms) .....	June '48	18	3
Tree Care In Lansing, Mich., Carl Fenner (Pruning, re- pair, spraying removal) .....	July '48	22	2
Don't Burn Leaves Under Your Trees .....	Sept. '48	21	¼
What Humus Does .....	Feb. '49	21	¼
Winter Protection for Trees and Shrubs .....	Feb. '49	24	1
Why Protect Wounds in Trees, John W. Swingle .....	Mar. '49	24	1½
Questions and Answers .....	Mar. '49	31	1
Some Plants Which are Likely to Tolerate Alkaline Condi- tions in Colorado .....	Apr. '49	9	½
Outline of a Program for Tree Care in Colorado .....	Apr. '49	21	1½
Hint for Seed-Sowers, Maud McCormick .....	Apr. '49	28	¾
Seeds and Seasons, Frances Binkley .....	Apr. '49	31	1
Cultural Chart for Perennials* .....	May '49	19	1
Our Readers Send Us Their Questions and Answers .....	May '49	33	1
Propagation of Roses, L. J. Holland* .....	June '49	16	2
How to Plant a Rose* .....	June '49	19	1
How to Divide and Plant Iris* .....	June '49	28	2
Questions and Suggestions from Our Readers .....	June '49	39	1
Some Cultural Suggestions for Tulips, Leslie F. Paull .....	Sept. '49	23	1
Its Smart to be Thrifty, Shade Tree Digest .....	Dec. '49	28	1
Shade Tree Care, Geo. M. Fisher .....	Feb. '50	31	1½
Transplanting Tricks: Evergreens, oaks, hackberry, haw- thorns, native aspen, roses in pots, birch* .....	Mar. '50	22	8
Scientific Tree Care .....	June '50	7	2
So Much for so Little* .....	Oct. '50	12	1½
The Chips are Down in Brush Disposal .....	Oct. '50	13	½
Grass Clippers and Profanity, M. Walter Pesman .....	Nov. '50	27	1
The Organic Movement, George W. Kelly .....	Dec. '50	6	1
The Organic Front, Reynolds Morse .....	Dec. '50	6	1½
The Non-Organic Front, R. Milton Carlton .....	Dec. '50	8	1
Ten Ways to Control the Climate Around Your Home, Am. Ass'n. of Nurserymen* .....	Jan. '51	10	5
Winter Injuries of Shade and Ornamental Trees, W. D. Thomas, Jr.* .....	Jan. '51	16	2
Look to Your Trees .....	Jan. '51	27	½
Planting Rules for Every Gardener .....	Feb. '51	12	2



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Stakes and Staking, Helen Fowler.....	Feb. '51	26	3/4
What Does Peatmoss Do To Garden Soil?.....	Mar. '51	22	1
Did You Have Winterkill? Wm. H. Lucking*.....	July '51	6	1
What Caused the Winterkill Last Year?.....	Nov. '51	32	1 1/4
Watering and Irrigating, Henry Gestefeld.....	Dec. '51	11	1
After the Builders Leave, Then What?.....	Feb. '52	6	1 1/2
Drainage .....	Feb. '52	7	1 1/2
Nursery Stock .....	Feb. '52	6,16	3/4
Transplanting Large Trees.....	Feb. '52	9	1
Hardy—But Where? Maude McCormick.....	Mar. '52	29	1
Taming Your Clay Soil, M. Walter Pesman.....	Apr. '52	24	3/4
Food for Your Trees.....	May '52	32	1
Good Gardeners Should Use Retraint.....	Sept. '52	16	1
How Many Drinks Can Your Soil Hold, M. Walter Pesman....	Oct. '52	10	1 1/4
The Organic Method in Haiti, Reynolds Morse.....	Oct. '52	12	3
The Why of Mulching, Lillian A. Castell.....	Oct. '52	20	1
Let's Suppose—Thirteen Garden Steps*.....	Nov. '52	6	4
The Important Five Percent.....	Feb. '53	11	3/4
A Protest Against the Burning of Christmas Trees, Lucille Thurman .....	Mar. '53	13	1/2
A Word of Warning, Armin Barteldes.....	Mar. '53	24	1/4
A Modern Way to Start Seeds.....	Mar. '53	26	3/4
Helpful Ideas for the Gardener, Patricia Wharfield.....	Mar. '53	28	1 1/2
Mulches in the Perennial Border, L. J. Holland.....	May '53	26	2
Beginner's Luck, Mrs. Douw Fonda.....	June '53	8	3 1/2
The Use of Sawdust as Mulch, Wesley P. Judkins.....	June '53	24	4
Your New Garden, Ernst C. Scheffler.....	July '53	19	1
Don't Depend Upon Organic Gardening to Control Pests.....	Aug. '53	25	1/2
Otero County, Mrs. A. R. Ormsbee.....	Sept. '53	6	1 1/4
From Helen Fowler's Garden Notebook.....	Apr. '53, 48; Mar. '53, 27	36	2
A Kitchen Jar for Compost Gardeners.....	Oct. '53	42	1
Rocking Your Garden to Sleep, Sara Fischer.....	Nov. '53	44	1
Is It Still Time to Mulch, Henry Gestefeld.....	Jan. '54	22	1
Get Your Money's Worth When Buying Nursery Stock.....	Feb. '54	11	1
Drainage, Its Importance.....	Feb. '54	22	1
Preparation of Your Rose Bed, Jack N. Withers.....	Apr. '54	29	1
Rose Culture in Fort Collins, Martha B. Jordan.....	Apr. '54	30	1 1/2
Greetings to New Rose Growers, Clair Robinson.....	Apr. '54	31	2 1/2
Plant Roses Early, A. E. Albera.....	Apr. '54	38	1
Helen Fowler's Garden Notebook.....	May '54	21	1
Soil Conditioning, Dr. A. A. Hermann.....	May '54	38	1
Helen Fowler's Garden Notebook.....	Sept. '54	36	3 1/2
Questions and Answers, on Good Gardening.....	Oct. '54	28	2

## DECIDUOUS TREES

Flowering Crabs for Colorado, George W. Kelly (Recom- mended varieties)* .....	May '44	7	2
Cottonwoods, S. R. DeBoer*.....	Nov. '44	8	3 1/4
Horse Chestnut .....	July '45	Cover	
Plant Zone 4 (Denver), George W. Kelly (Lists of trees by size and use).....	July '45	16	5 1/2
Yellow Chestnut Oak.....	Sept. '45	Cover	
Trees for Zone 5, George W. Kelly.....	Sept. '45	6	1
Trees for Boulder, George W. Kelly (Best Kinds)*.....	Sept. '45	7	2
Tuliptree .....	Sept. '45	9	
Sycamore Maple .....	Sept. '45	10	
Varnish Tree .....	Sept. '45	11	
Denver's First Arboretum (W. H. Byer's Plantings).....	Sept. '45	12	2 1/4
Trees for Zone 8, George W. Kelly*.....	Nov. '45	9	1



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Deciduous Trees for Plant Zones 1 and 6, George W. Kelly*	Mar. '46	1	1
Deciduous Trees for Colorado Plains, George W. Kelly (Recommended Varieties)	May '46	12	2½
Quaking Aspen In Winter	July '46	13	
Cottonwood Trees (Central City)	July '46	31	
Oak Trees in Denver, S. R. DeBoer*	Sept. '46	3	1½
Bur Oak	Sept. '46	2	
Pin Oak	Sept. '46	4	
Four Good Trees for Colorado, Scott Wilmore	Nov. '46	14	3½
Red Oak	Nov. '46	17	
Cottonwood in Washington Park	Nov. '46	15	
Linden In Civic Center	Nov. '46	16	
Trees, George W. Kelly (Brief Lists)	Jan. '47	5	1
Big Trees, L. C. Shoemaker*	Jan. '47	15	2
Cottonwood Tree	Jan. '47	15	
List of Trees for the Plains	Mar. '47	24	½
List of Trees for Arkansas Valley	May '47	13	¼
Quaking Aspen as Seen by the Watershed Researcher, B. C. Goodell*	July '47	8	4
Aspen Trees	July '47	Back Cover	
Do We Need a Shade Tree Service? Ernst J. Schreiner	Sept. '47	25	2
Chinese Elm and Maple, John Roberts	Sept. '47	29	½
Colorado Street Trees*	Nov. '47	16	2
Street Trees for Colorado (Lists of trees for all situations)*	Jan. '48	8	5½
Cutleaf Weeping Birch	Jan. '48	9	
Norway Maple	Jan. '48	11	
Cottonwood	Feb. '48	24	
Lists of Trees for Landscape Use in Mountains*	Feb. '48	27	¼
Cultivated Lindens of the Denver-Boulder Area, Edna Johnson*	Apr. '48	16	6
American Linden	Apr. '48	18	
European Linden	Apr. '48	19	
Trees for Colorado (Best 10 as selected by nurserymen)	May '48	9	1
Hardy Plant Materials for High Altitude	May '48	12	2½
Aspen	June '48	23	
Is the Linden a Natural Lightning Rod? Leslie F. Paull	Aug. '48	28	1¼
Oaks in Colorado, George W. Kelly (Key to Oaks of Colorado)*	Oct. '48	14	9
Black Oak	Oct. '48	13	
Eastern Red Oak	Oct. '48	15	
White Oak	Oct. '48	15	
Pin Oak	Oct. '48	15	
Northern Pin Oak	Oct. '48	16	
Bur Oak	Oct. '48	16	
Speaking of Trees	Dec. '48	24	½
American Beech	Jan. '49	22	
Tuliptree	Jan. '49	Back Cover	
Some Thoughts on Trees, Fred R. Johnson (Why certain trees are planted)*	Feb. '49	4	2
Birch Tree	Feb. '49	4	
American Elm Tree	Feb. '49	5	
Woody Exotics in Denver, M. Walter Pesman*	Mar. '49	4	4
Cottonwood	Mar. '49	4	
Horsechestnut	Mar. '49	5	
Kentucky Coffeetree	Mar. '49	6	
English Oak	Mar. '49	6	
Sycamore	Mar. '49	7	
Nettled by the Nettle tree? M. Walter Pesman (Hackberries)*	Aug. '49	20	2
Common Hackberry	Aug. '49	20	
Your Trees Are Valuable, George M. Fisher	Dec. '49	16	2



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Trees for Denver (Good and bad qualities. Alphabetical list) .....	Mar. '50	7	9
Landscape Adornment, W. R. Leslie (Canadian Exp. Station) .....	May '50	20	5
Shingle Oak .....	June '50	20	
Soft Maple .....	June '50	19	
Buckeye .....	Oct. '50	6	
Goldenrain Tree .....	Oct. '50	7	
Goldenrain Tree .....	Dec. '50	23	1/2
Living Fossil (Metasequoia) .....	Dec. '50	20	1
Chinese Catalpa* .....	Jan. '51	25	1/2
White Birch Tree .....	Feb. '51	11	
Chlorosis of Ornamental Trees, L. C. Chadwick (Suggested treatments) .....	Aug. '51	16	1 1/4
Causes of Autumn Colors, John W. Swingle .....	Oct. '51	25	3/4
Buckeyes and Horsechestnuts, George W. Kelly* .....	Oct. '51	26	1
Best Trees for All Purposes (List) .....	Nov. '51	25	1/2
Trees and Safety, Geo. S. Stadler .....	Dec. '51	13	1/2
Deciduous Trees, Lists (According to Height) .....	Mar. '52	17	2
A Hackberry, S. R. DeBoer .....	Apr. '52	24	1/4
Willow Trees and Chestnuts in Washington Park, S. R. DeBoer* .....	May '52	13	1/2
Oak Tree Leaves .....	June '52	9	
Our Native Cottonwoods* .....	June '52	19	2
American Linden Tree .....	July '52	5	1/2
What Tree Shall I Use, Scott Wilmore .....	Dec. '52	16	1 1/4
My Favorite Tree, Len Shoemaker (Aspen)* .....	Dec. '52	25	2
Birch .....	Jan. '53	19	
Red Oak Leaves .....	Feb. '53	7	
Trees, Their Place in the Complete Highway, Karl Dressel .....	Feb. '53	8	1 1/2
Should Reason or Emotion Control the Use and Acceptance of Ornamental Shade Trees? George S. Stadler* .....	Feb. '53	10	1 1/4
The Important Five Percent .....	Feb. '53	11	3/4
Horse Chestnuts, S. R. DeBoer .....	June '53	42	1/2
Catalpa .....	July '53	16	
Birch .....	July '53	17	
Hardiness and Desirability of Woody Plants for Landscape use in Colorado (Good and Bad qualities listed) .....	July '53	24	7
Soil Fertility Controls Tree Growth .....	Aug. '53	32	1
Plants for the Arkansas Valley .....	Sept. '53	22	1 1/2
Trees for Boulder* .....	Oct. '53	16	2
Flowering Dogwood .....	Oct. '53	17	
Redbud .....	Oct. '53	17	
The Augustine Ascending Elm, Scott Wilmore* .....	Jan. '54	23	1
New Type of Street Tree, S. R. DeBoer .....	Jan. '54	32	1/2
Purple Plum as Street Tree .....	Jan. '54	32	
Chart Showing Use and Characteristics of the Most Popular Trees Planted in Colorado, Patrick J. Gallavan .....	Mar. '54	18	2
Should People Like Trees, Carl Schulhoff* .....	Mar. '54	20	2
Native Cottonwood .....	Mar. '54	20	
Denver Lindens, George S. Stadler .....	Mar. '54	22	1 1/2
Linden Tree .....	Mar. '54	22	
Catalpa .....	June '54	19	
Goldenrain Tree, Koelreuteria .....	June '54	19	
Native Aspen .....	Sept. '54	13	1
A Tree is Planted for Usefulness, Nat. Tree News .....	Oct. '54	3	1
Trees in Relation to Home Planting, By M. Walter Pesman .....	Nov. '54	10	5
Rocky Mountain Shade Trees, Lists for all uses and locations .....	Nov. '54	16	2
Trees for Colorado, Short Descriptions of each and pictures of many of them .....	Nov. '54	18	12



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<b>EDUCATION</b>			
Outdoor Education, Roberts Mann.....	Oct. '48	4	2
Progress in Horticultural Education.....	Feb. '51	23	1/2
Nature Appreciation Through Gardening, Alex Klose.....	Mar. '51	12	5
Why Teach Nature? Joe Penfold.....	June '51	14	2
"Look and Learn" Garden Visits*.....			
.....June '51, 18; July '51, 15; Aug. '51, 5; Oct. '51		20	1 1/2
Horticultural Opportunities, George W. Kelly.....	July '51	17	1/2
Fingers in the Soil, Frances M. Miner.....	Aug. '51	31	1/2
Parks for Learning.....	Aug. '51	31	1/4
We Need to Train Nature Teachers, Leo F. Hadsall.....	Aug. '51	32	1
Arborists, Toot Your Own Horn, Dr. Ray R. Hirt.....	Nov. '51	30	1 1/2
Seeds for Democracy.....	Jan. '52	20	1/2
What Gardening Means to Me, Haydn S. Pearson.....	Feb. '52	23	3/4
Are You a Garden Snob? Ella Roark.....	Feb. '52	29	3/4
Annual Nature Leaders Institute.....	Apr. '52	21	1/2
The Place of Children in a Horticultural Program for Colorado, Charles Drage.....	May '52, 16; June '52	8	1 1/4
A Horticultural Program for Colorado, Charles M. Drage.....	June '52	8	1/2
Garden on a Postage Stamp, Kathryn Kalmbach*.....	Jan. '53	3	2 1/2
God Planted a Garden, Herman G. Halstead.....	Apr. '53	44	1/2
Our Green Thumbers of Tomorrow, Chas. M. Drage.....	Aug. '53	24	2
Outdoor Education for Adults, Roberts Mann*.....	May '54	40	1 1/2
Conservation and Outdoor Education in Schools, Roberts Mann .....	June '54	28	1

**EVERGREENS**

The Oneseed Juniper is a Worthwhile Native*.....	Feb. '44	5	1/4
Bristlecone Pine* .....	May '44	9	1
Bristlecone Pine .....	May '44	Front Cover	
Protect Your Evergreens, Wm. H. Lucking, Jr. (Pest and controls) .....	July '44	3	1
Pinyon Pine, Robert E. More*.....	July '44	16	3
Limber Pine .....	Sept. '44	Cover	
Pines for Colorado, Robert E. More (Kinds and Uses)*.....	Sept. '44	1	2
Ponderosa Pine .....	Sept. '44	3	
Simple Key to Pines, Dr. Donald Wyman (Includes trees only for this area).....	Sept. '44	4	2
Colorado Spruce .....	Jan. '45	Cover	
Rocky Mountain Juniper, Scott Wilmore.....	May '45	7	
Limber Pine .....	May '45	13	
Evergreens in Ornamental Planting, Kathleen Marriage* (Kinds to use).....	July '45	11	2
Ponderosa Pine .....	Nov. '45	4	
Evergreens—Their Selection and Care, Robert E. More.....	Jan. '46	1	2 1/2
Hedges for Colorado, George W. Kelly (Complete list of materials in all sizes).....	Jan. '46	3	6
Observations on Hedges, Robert E. More*.....	Jan. '46	9	2
Growing Evergreens from seed at the Monument Nursery*.....	Jan. '46	14	4
Rocky Mountain Juniper.....	May '46	Cover	
Evergreens—Their Selection and Care, Robert E. More (Pruning)* .....	May '46	2	6
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Canaert Juniper .....	May '46	6	
Mugho Swiss Mountain Pine.....	May '46	7	
Ponderosa Pine .....	July '46	5	
Douglas Fir .....	July '46	6	
Rocky Mountain Juniper.....	July '46	7	
Mountain Common Juniper.....	July '46	7	



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Evergreens—Their Selection and Care, Robert E. More (Uses and Lists of Very Tall Evergreens)*.....	Sept. '46	15	8
Colorado Spruce .....	Sept. '46	14	
White Fir .....	Sept. '46	16	
Bristlecone Pine .....	Sept. '46	17	
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Black Hills Spruce.....	Sept. '46	21	
Koster Blue Spruce.....	Nov. '46	Cover	
Evergreens, George W. Kelly (Brief Lists)*.....	Jan. '47	6	1
Big Trees, L. C. Shoemaker*.....	Jan. '47	15	2
Engelmann Spruce .....	Jan. '47	15	
Limber Pine .....	Jan. '47	16	
Canaert Redcedar .....	Jan. '47	23	
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Lists of Evergreens for the Plains.....	Mar. '47	2	4 1/4
Engelmann Spruce .....	Mar. '47	Back Cover	
Canaert Redcedar .....	May '47	2	
Lists of Evergreens for the Arkansas Valley.....	May '47	13	1/4
Evergreens—Their Selection and Care, Robert E. More (Tall evergreens. Their Kinds and Uses)*.....	May '47	28	8
Moffet Juniper .....	May '47	28	
Glenmore Queen, Rocky Mountain Juniper.....	May '47	30	
Colorado Pinyon Pine.....	May '47	31	
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Hillbush Juniper .....	Nov. '47	Front Cover	
White Fir .....	Nov. '47	2	
Andorra Creeping Juniper.....	Nov. '47	2	
White Fir, Alice Wood.....	Nov. '47	3	1/4
Hill Japanese Juniper.....	Nov. '47	35	
Mugho Swiss Mountain Pine.....	Nov. '47	35	
Dwarf Japanese Yew.....	Nov. '47	Back Cover	
Pfitzer Chinese Juniper.....	Nov. '47	Back Cover	
List of Evergreens for Landscape Use in the Mountains*.....	Feb. '48	27	1/4
Broadleaf Evergreens, Clair Robinson*.....	Dec. '48	4	2
Timberline Trees, Robert E. More*.....	Jan. '49	5	14
Limber Pine .....	Jan. '49	10	
Bristlecone Pine .....	Jan. '49	12	
Engelmann Spruce .....	Jan. '49	13	
Christmas Tree Farming, E. S. Keithley*.....	Jan. '49	18	3
Rocky Mountain Cedar.....	Feb. '49	31	1/4
Rocky Mountain Cedar.....	Feb. '49	Back Cover	
Ponderosa Pine Cones.....	Mar. '49	Cover	
Red Spiders and Aphis on Cedars, Robert E. More*.....	July '49	25	1 1/2
Effective Use of Evergreens*.....	Mar. '50	19	1/2
Evergreen Ground Covers, Kathleen Marriage*.....	Mar. '50	21	2
Adventures With Broad Leaved Evergreens, Arthur Braun (Growing Rhododendrons in Cheyenne)*.....	Mar. '50	23	3 1/2
Evergreens Suitable for Landscape Use In Colorado (Lists in various sizes).....	Apr. '50	28	1
This Tree Was Present When Civilization Began, M. Walter Pesman .....	June '51	27	1/4
To Evergreens That Are in Trouble, Wm. H. Lucking*.....	July '51	8	2
Ponderosa Pine .....	July '51	9	
Juniperus scopulorum .....	July '51	8	
New Hardy Evergreens for Colorado, Robert E. More.....	Dec. '51	14	1
Leaf Drop of Evergreens.....	Dec. '51	24	1/4
White Pine .....	Mar. '52	23	



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The Big Tree, Dorothy Gould.....	Apr. '53	26	1/2
Hardiness and Desirability of Woody Plants for Landscape Use in Colorado (Good and bad qualities listed).....	July '53	24	7
The Tree That Saved Itself, J. V. K. Wagar.....	Aug. '53	8	1 1/2
Care of Young Evergreens.....	Aug. '53	23	1/2
Plants for the Arkansas Valley.....	Sept. '53	22	1 1/2
Camels, Kathleen Marriage.....	Nov. '53	10	2
Dwarf Alberta Spruce.....	Dec. '53	24	
One Good Evergreen, W. B. Nuzum.....	Jan. '54	24	1
Pfitzer Juniper .....	Jan. '54	24	
This is Right, E. J. Sinnamon.....	Mar. '54	15	1/2
Juniperus sabina tamariscifolia.....	Mar. '54	15	

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Maidenhair Fern, Lucy F. Ela.....	May '46	17	1/2
Rabbit's Foot Fern.....	Sept. '45	Coxer & 10	
Ferns Hardy in Colorado, Helen K. Fowler*.....	Nov. '46	10	6 1/2

**FERTILIZERS**

Fertilization of Street Trees, Gilbert A. Pike.....	Mar. '48	9	1
Composts, Manures and Inorganic Fertilizers, Their Func- tion, Use and Effects on Soils and Plants, Walter Thomas (Inorganic vs. Organic Fertilizers).....	Mar. '48	21	2 1/2
What Fertilizer is Best, Wm. E. Gunesch.....	Feb. '54	16	2
Simple Facts about Fertilizing Roses, P. B. Smith.....	Apr. '54	40	1 1/2

**FLORAL ARRANGEMENTS**

Prolonging the Life of Cut Flowers, Myrtle R. Davis.....	July '49	6	1 1/4
Arrangements of Gladiolus, Mrs. C. Earl Davis.....	Aug. '49	11	
Timberline Thrills, Myrtle Ross Davis.....	Dec. '49	24	1
Christmas Decoration from the Garden, Claire Norton.....	Dec. '49	25	1 1/2
A Winter Arrangement, Myrtle Ross Davis*.....	Jan. '50	26	1
March Magic, Mrs. Earl Davis*.....	Mar. '50	6	1/2
Table Setting, Mrs. Chas Enos and Mrs. Wallin Foster*.....	June '50	25	1
June Flowers in February, M. Walter Pesman*.....	May '52	14	1 1/4
Seed Panels, Margaret Horne*.....	Nov. '52	22	1 1/2
Christmas Doorway Decoration, Rebecca Enos.....	Dec. '52	47	1
A Novel Centerpiece.....	Mar. '53	35	1/4
Gladiolus Arrangement .....	June '53	14	1
My Makings Tray, Dorothy M. Wagar.....	Aug. '53	28	1
Echoes from the Dried Drama Flower Show, Cartoons by Pauline Steele .....	Jan. '54	29	1/2
Using Roses Indoors, Sue Kelly*.....	Apr. '54	50	4 1/2
Summer's Harvest, Sue Kelly (Dried Arrangements)*.....	June '54	14	2

**FORESTRY**

Forest Influences (Experiments in snow retention).....	Feb. '44	7	1/2
Memorial Forests, Fred R. Johnson.....	Sept. '44	14	3/4
Plain Facts About Forests.....	Sept. '44	15	1
Spruce Beetle Infestation Follows Big Blow Down, John W. Spencer (Start of Spruce-Beetle infestation)*.....	Jan. '45	9	2
Tree Farms .....	Sept. '45	8	1/4
What About Forestry in the Rockies, Sgt. G. W. Carlson (Jobs in the mountains).....	Sept. '45	19	2 1/2
Do Jobs Grow on Trees.....	Sept. '45	21	1/2
Colorado Forests Can Supply Jobs, J. Lee Deen*.....	Nov. '45	5	1 1/2
Colorado Timber Makes Good Fence Posts, Jules Renaud.....	Nov. '45	7	1 1/2
Growing Evergreens from Seed at Monument Nursery.....	Jan. '46	14	4
Natural Recovery from Cropland, G. E. Klipple*.....	May '46	10	2
Report of Forest Management, Allen S. Peck.....	May '46	16	1



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Forestry on the March, Allen S. Peck (Good forestry prac- tice) .....	Jan. '47	17	3
On the Grazing Front, Allen S. Peck.....	Mar. '47	3	1
Forest Survey Assured, Everett J. Lee.....	Mar. '47	27	1/2
National Forest Wilderness Areas, L. C. Shoemaker*.....	May '47	22	3
Grand Mesa of Colorado, Roy L. Williams*.....	July '47	15	6
How Public Are Grazing Lands? F. R. Carpenter.....	July '47	21	1
Watershed Planting on the Pike National Forest, Jay Higgins* .....	Sept. '47	22	2 1/2
How the National Forests Came to Be, Don Bloch*.....	Feb. '48	10	4 1/2
Colorado Forestry Report, Allen S. Peck.....	Apr. '48	14	1 1/2
New Assets in Aspen, Don Bloch*.....	June '48	22	2 1/2
It Can Happen Here, George W. Kelly (Damage of Dendroctonus beetle to Engelmann spruce).....	Sept. '48	14	2
Christmas Tree Farming, E. S. Keithley*.....	Jan. '49	18	3
Improving the Habitat, Allen S. Peck.....	Jan. '49	28	1
Hastings' Report on State Forestry.....	Feb. '49	22	1/2
1948 Report of Lyle F. Watts, Chief of U. S. Forest Serv- ice .....	Mar. '49	11	3/4
War Declared on Pine Bark Beetles, Clayton Weaver.....	Oct. '49	26	1 1/2
To Keep the Future Green, Don Bloch (About the Monu- ment Nursery) .....	Aug. '50	22	2 1/2
Report on Grazing Situation in Roosevelt Forest.....	Aug. '50	24	1 1/2
Crucial Year for Beauty Control, Don Bloch.....	Oct. '50	24	2 1/2
New Service for Woodland Owners, Dave Minister.....	Dec. '51	26	3/4
Green Thumbs Everywhere*.....	Oct. '52	32	1
Memorial Forests, Fred R. Johnson.....	Dec. '53	38	3

## FRUITS

Fruits for Colorado, George K. Kroh (Suggested Varieties for planting) .....	Mar. '45	2	2 1/2
Oriental Fruit Moth Found in Colorado, F. Herbert Gates.....	Mar. '45	20	2
Fruit, George W. Kelly (Brief Lists).....	Jan. '47	8	1/4
Lists of Fruits for Plains.....	Mar. '47	24	1/4
Lists of Fruits for the Arkansas Valley.....	May '47	13	1/4
Lists of Fruits for Landscape Use in the Mountains*.....	Feb. '48	28	1/4
Small Fruits for Colorado, George W. Kelly.....	Nov. '48	22	1 1/2
Notes on the Growing of Grapes in Denver, R. E. Ewalt.....	Mar. '49	13	3/4
Strawberries, Martin R. Keul (Very complete).....	Mar. '49	14	1
Fruits Attractive to Birds.....	Feb. '50	23	1/4
Consider the Fall Fruits for Color and Interest, George W. Kelly* .....	Oct. '50	6	1 1/2
You Can Grow Strawberries, Clair Robinson.....	Dec. '51	10	1/2
Good Fruit for Eastern Colorado, Herbert Gundell (Com- plete list) .....	Dec. '51	20	2
Home Grown Fruit is Twice as Good, Herbert Gundell.....	Dec. '52	40	1 1/2
Pyramid Strawberry Gardens, M. E. Nixon.....	Apr. '53	16	1 1/2
Strawberry Trials at Colorado A & M College, Carl Jor- gensen* .....	Aug. '53	12	3
Plants for the Arkansas Valley.....	Sept. '53	22	1 1/2
Let's Grow and Eat More Strawberries, J. M. Lancaster.....	May '54	24	1
New Strawberry Runners, J. M. Lancaster.....	June '54	32	1/2

## GARDEN ACCESSORIES

Garden Accessories .....	Jan. '47	12	1/4
Ornamental Detail in Gardens (Well Illustrated).....	Aug. '50	24	8
Fences and Other Enclosures*.....	July '52	18	4
Poetry in Wrought Iron, Jack Harenberg*.....	Mar. '53	18	4
Garden Accessories, Mrs. Charles O. Parker*.....	May '53	22	4
Fences for Country Homes*.....	June '53	38	2



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Garden Clubs for All Gardeners, Mrs. Chas. Weskamp.....	July '52	16	1½
Hillcrest Garden Forum, May Yard.....	Apr. '53	23	¾
Men's Garden Clubs, R. G. Myer.....	Apr. '53	32	1
Our Garden Club Works, Gretchen Clayton.....	June '53	16	1
Rocky Ford Garden Club, Charlotte B. Fenton.....	Sept. '53	8	¾
Rocky Ford Flower Show, Mrs. Perry E. William*.....	Sept. '53	9	1
La Junta Garden Club*.....	Sept. '53	26	1
Men's Garden Clubs, James B. Stewart.....	Feb. '54	34	1
The Denver Rose Society, Lou Appeldorn.....	Apr. '54	12	1½
<b>GOOD GARDENING</b>			
Gardening for the Blind.....	June '48	9	½
A Weed Garden, F. Binkley*.....	Dec. '48	19	½
What Gardening Means To Me.....	Aug. '49	2	¾
Garden Gambling, Maud McCormick.....	Sept. '49	36	¾
Plants You Can Grow, Or Can You? M. Walter Pesman.....	Dec. '49	12	3
Let Me Smell Your Garden, M. Walter Pesman.....	Jan. '51	9	1
Plant Pals (Plants that go well together).....	Oct. '51, 8; Nov. '51	10	4
Plant Pals Notes, Claire Norton*.....	Nov. '51	12	1½
Plant Pals, Mrs. Amelia Huntington.....	Jan. '52	5	¼
Possible Return of the Roof Garden, Helen Fowler.....	Feb. '52	25	½
Our Gardens Should Have the Blues, Maud McCormick.....	Mar. '52	34	¾
Letters from Kathleen Marriage to Ruth Nelson.....	Apr. '52	28	1
The Loveliest Gardens Anywhere and Jolly People, Kathleen Marriage .....	May '52	11	1
Look and Learn Garden Visits, Vahna Broman.....	June '52	26	1¾
Look and Learn Garden Visits, Vahna Broman.....	July '52	22	1½
Look and Learn Garden Report, Daisy Hastings.....	July '52	23	½
Look and Learn Garden Visits, Vahna Broman.....	Aug. '52	26	2
Good Gardeners Use Restraint, George Kelly.....	Sept. '52	16	1¼
Say It With a Garden, Helen D. Stanley.....	Oct. '52	16	1
Look and Learn Garden Tour Report, Daisy Hastings.....	Oct. '52	24	1½
Home of a Tree Lover*.....	Nov. '52	18	3
A Deserted Garden, Anna R. Garrey.....	Dec. '52	14	2½
Gardening—Is It a Remedy or a Disease? R. G. H.....	Dec. '52	36	1½
Postage Stamp Garden, Mrs. Mildred Steele.....	Dec. '52	49	1½
Garden on Postage Stamps, Kathryn Kalmbach.....	Jan. '53	30	2½
My Neighbor's Garden, Vella Hood Conrad.....	Apr. '53	22	1
Jefferson County Gardens.....	Apr. '53	30	2
Look and Learn Garden Visits, Sue Kelly.....	May '53	20	1½
Dry Land Gardening.....	June '53	48	2
Look and Learn Garden Visits, Vahna Broman.....	June '53	54	1½
July "Look and Learn" Garden Visits, Sue Kelly*.....	July '53	32	2
Ft. Collins Gardens.....	Aug. '53	10	2
Larimer County Gardens.....	Aug. '53	15	1
Garden Tours, Sue Kelly.....	Aug. '53	20	1
Gardener and Pupil*.....	Aug. '53	26	1
Otero County, Mrs. A. R. Ormsbee.....	Sept. '53	6	1¼
The Steele's Flop House.....	Sept. '53	10	2
There Can Be Beautiful Gardens—Even in a Difficult Climate* .....	Sept. '53	18	4
Boulder Gardens* .....	Oct. '53	25	6
Look and Learn Report, Sue Kelly*.....	Oct. '53	30	1
Longmont and Niwot Gardens.....	Oct. '53	36	2
Apology in a Garden, Lucille A. Thurber.....	Nov. '53	14	2¼
Gardens in Sterling.....	Dec. '53	20	7
Ceramic Gardener, Mildred Steele*.....	Feb. '54	20	3
About Gardens, Ruth Wickersham (Inspirational)*.....	May '54	11	1
The Desert Garden, D. M. Andrews*.....	Oct. '54	16	6
Look and Learn Garden Tour Summary, Sue Kelly.....	Oct. '54	35	1



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Consider the Ornamental Grasses, Helen Marsh Zeiner*.....	June '50	26	1½
Plume Grass .....	June '50	26	
Quaking Grass .....	June '50	26	
Bunchgrass .....	Nov. '50	21	
Our Vanishing Bunchgrass, E. D. Sandvig*.....	Nov. '50	21	2½
What Kind of Lawn Grass? Herb Gundell.....	Aug. '54	12	2
Kentucky Bluegrass, Pioneer Extraordinary, Robert W. Schery* .....	Aug. '54	14	3
Buffalograss From Seed, George M. Fisher.....	Aug. '54	34	1½

**GREEN THUMB**

Objectives of the Green Thumb.....	May '44	1	1
Objectives of The Green Thumb.....	July '44	1	½
Who Had the First Green Thumb, M. Walter Pesman.....	Jan. '45	4	1
Hunt for Green Thumbs.....	Nov. '45	Cover	½
Fore! Robert E. More.....	Nov. '46	Cover	1½
Our Colored Illustrations.....	Nov. '47	2	

**GREENHOUSES AND COLDFRAMES**

My Orchid Orphanage, Ruth P. Waring*.....	Mar. '48	14	6
Jack Sez (Cold frames).....	Apr. '48	32	½
A Family Utility Greenhouse, Janet Chapman*.....	May '48	23	3
Cold Frames and How to Make Them, Helen Fowler.....	Feb. '49	9	½
Starting Plants for Early Bloom, L. J. Holland*.....	Apr. '49	6	1½
The Orchid—Jewel of Flowers, Miss Ruby C. Smith.....	Aug. '49	12	2
The Home Greenhouse, Ernest Chabot*.....	July '50	28	2
Plan Now for Winter Gardening, Betty Lou Thompson (Green houses) .....	June '53	18	2½

**GROUND COVERS**

Evergreen Ground Covers, Kathleen Marriage*.....	Mar. '50	21	2
Ground Covers Need Not Always Be Lawn or Even Plants*.....	Mar. '51	18	2
A Special Ground Cover for Use in the Sun, Helen Fowler (Dwarf Lace Plants).....	Mar. '52	8	½
<i>Sedum-Kamtschaticum</i> .....	Mar. '52	24	
<i>Alpine Sandwort</i> .....	Mar. '52	24	
<i>Sedum rupestre</i> .....	Mar. '52	25	
<i>Sedum Anacampseros</i> .....	Mar. '52	25	
Ground Covers for Every Garden Need, Helen Fowler* (Lists and illustrations).....	Mar. '52	24	3
Ground Covers for Many Conditions, Helen Fowler*.....	Dec. '52	19	
<i>Oregon Grape</i> .....	Apr. '53	29	½
<i>Oregon Grape</i> —A Good Ground Cover, Earl Sinnamon.....	Apr. '53	29	½
A <i>Sedum</i> Garden, Clair Robinson*.....	Jan. '54	31	1
Ground Covers for Use in Areas Where Grass Refuses to Grow, Helen Fowler.....	Aug. '54	38	1

**HERBS**

Growing Culinary Herbs in Colorado, Myrtle Ross Davis (Culture and Lists).....	Mar. '46	12	3½
Culinary Herbs of Colorado, Leslie Paull.....	Aug. '48	19	2¾
Why Not an Herb Garden, Frances Binkley.....	May '49	8	1
Add Spice to Your Garden with Culinary Herbs, Dr. Moras Shubert .....	May '52	8	1½

**HERBARIUM**

Hortus Siccus, Kathryn Kalmbach.....	Jan. '47	3	½
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Observations on Hedges, Robert E. More*.....	Jan. '46	9	2
Trimming Hedges, Kathleen Marriage*.....	Jan. '46	11	1
Hedges, George W. Kelly (Brief lists).....	Jan. '47	8	1/2
Hedges, Kathleen Marriage.....	Mar. '49	10	1/2
Material Suitable for Making Clipped Hedges (Lists in various heights) .....	Feb. '50	21	1/2
<i>Hedge Trials at Morden Experimental Grounds</i> .....	May '50	21	
Hedges and Hawthorns, Joan Parry*.....	Feb. '51	Cover	1/2
Try the Gas Plant for a Different Hedge, Helen Fowler.....	Oct. '51	17	1/4
Hedges, With a Little Help on How to Plant Them, Helen Fowler* .....	Oct. '51	30	1 1/2
Use of Hedge Materials, Wm. Lucking.....	Dec. '52	13	1
<i>Hedges</i> .....	Jan. '53	9	
<i>Privet Hedge</i> .....	Jan. '53	19	
Good Hedges Take Time, Earl Sinnamon*.....	July '53	11	3/4
<b>HORTICULTURE</b>			
We Need Research in Colorado, Dr. A. C. Hildreth.....	May '47	5	1
Definition of Horticulture, Dr. Frans Verdoorn.....	Sept. '47	15	1/2
A Few Little-Known Facts About Some Well-Known Plants and Other Notes, Helen Fowler*.....	Jan. '48	22	3
Fragrant Plants .....	June '48	13	1/2
The Opportunity of America.....	June '48	26	1 1/2
Plight of Horticultural Research in the Great Plains— Rocky Mountain Area, A. C. Hildreth.....	July '48	4	3 1/2
Glimpse of Horticulture in the Far East, George Beach.....	Aug. '48	11	2
<b>HORTICULTURAL ORGANIZATIONS</b>			
United Horticulture Needed.....	Jan. '47	3	1/4
Rocky Mountain Horticultural Conference.....	Jan. '48	3	1/2
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Second Annual Rocky Mountain Horticultural Conference.....	Feb. '49	31	3/4
Rocky Mountain Horticultural Conference.....	Mar. '49	22	1/2
Third Rocky Mountain Horticultural Conference*.....	Jan. '50	29	1
Third Rocky Mountain Horticultural Conference.....	Mar. '50	31	1
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Rocky Mountain Horticultural Conference.....	Feb. '52	4	1
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<b>HORTICULTURE HOUSE</b>			
Headquarters Building (Start of Horticulture House).....	Sept. '46	1	1/4
<i>Horticulture House</i> .....	Jan. '47	Cover	
Planting Plan for Headquarters, Mrs. G. R. Marriage.....	Jan. '47	2	1
<i>House Plan</i> , Lester E. Varian.....	Jan. '47	25	1
Preliminary Announcement of Activities at Horticulture House .....	May '47	3	1
Opening of Horticulture House.....	July '47	2	1
Donors to Horticulture House, Library and Grounds.....	July '47	3	1/2
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A Dream Come True, Amelia R. Field (Opening of Horti- culture House) .....	Sept. '47	10	1
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<i>Horticulture House Interior</i> .....	Feb. '48	16	2
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## HOUSE PLANTS

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Care of House Plants, Doras Hedberg.....	Feb. '49	27	1½
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African Violets, Mrs. Theodore Greer*.....	Oct. '49	16	2
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Mrs. C. A. Hedberg's Window Garden.....	Oct. '49	Back Cover	
Grow Gay Green Vines, Claire Norton.....	Oct. '49	23	1
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Out of This World, Robert F. Topp*.....	Nov. '49	14	2
Gardening Indoors, Helen Marsh Zeiner (Culture and Kinds)* .....	Nov. '50	6	5
Just Call Me Spineless, Elizabeth Nixon Eckstein*.....	Nov. '50	12	2½
Turn Your Thumb Green this Winter, Rebecca Enos*.....	Nov. '50	14	2½
A Satisfying Indoor Garden*.....	Mar. '51	10	1½
Fun With Geraniums, Mercy Bernice Noyce (Culture)*.....	Apr. '51	22	2
A House Plant for Moderns, Claire Norton (Philodendron)*.....	July '51	16	1½
They Named it <i>Sinningia speciosa</i> (Gloxinia), Claire Norton* .....	Oct. '51	12	2
Bringing the Garden Indoors, Compiled by K. Kalmbach*.....	Oct. '51	18	2
<i>Beefsteak Begonia</i> .....	Oct. '51	18	
Growing in Metal Planters, Mary K. Heller.....	Dec. '51	7	1
How to Care for Your Christmas Poinsettia, Helen M. Zeiner .....	Dec. '51	15	1
Imagination and Know How, a Garden Room, Freda G. Douglas* .....	Mar. '52	6	1
Notes on Structure of a Garden, Lewis Smith*.....	Mar. '52	7	1
The Wardian Garden, Mildred Steele.....	Mar. '52	32	1
House Plants With No South Windows? (Indoor plants with artificial light).....	Apr. '52	12	1½
Christmas Cactus—Zygocactus, Rose Tuggle.....	Apr. '52	18	1½
The Flame Violet, Dr. A. C. Hildreth.....	May '52	6	1¼
Tea Cup Gardens Brightens Your Office, Katherine Crocker*.....	May '52	28	1½
Pelargonium, Geranium, Rose Tuggle.....	June '52	34	1½
Plan Now for Flowers in the House This Winter, Rose Hughes .....	Aug. '52	34	1½
When Is a "Cactus" Not a Cactus, Elizabeth Nixon Eckstein.....	Sept. '52	10	2
<i>Various Cactus</i> .....	Sept. '52	10	
Say It With a Garden, Helen Standley (Dish Gardens).....	Oct. '52	16	1
Some "Easy to Grow" House Plants, Helen Marsh Zeiner.....	Nov. '52	12	2½
Succession of Bloom in the Window Garden, Rose Tuggle.....	Nov. '52	24	2
Keep Your Christmas Plants Happy for the New Year, Rose Tuggle .....	Dec. '52	44	1¼
Christmas Doorway Decoration, Rebecca Enos.....	Dec. '52	47	1
Getting the Most from Christmas Plants, The Master Gardener .....	Jan. '53	29	¾
Orchids As a Hobby, Mrs. Judith King.....	Jan. '53	32	1½
Bring the Spring Indoors, Helen Marsh Zeiner*.....	Mar. '53	22	2½
Dish Gardens and Planter Boxes, Peter Collier.....	Mar. '53	30	1
More About African Violets, Mrs. Theodore M. Greer.....	Apr. '53	18	2½
<i>Spider Lily</i> .....	Apr. '53	43	1½
African Violets—Saintpaulias, Garnet H. Campbell.....	June '53	17	1
Amaryllis That Bloom Every Year, Elna Nickels*.....	June '53	36	1



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House Plant Care, By Helen Marsh Zeiner.....	Jan. '54	20	2
Mealy Bugs on House Plants, Shade Tree Digest.....	Jan. '54	28	1
Spring in Winter, Ruth Ashton Nelson (Bulbs indoors).....	Oct. '54	14	1 1/2

## HYDROPONICS

Growing Plants Without Soil, A. M. Binkley (Water and gravel culture) .....	Jan. '45	14	3
Hydroponics on the March, Mary K. Heller.....	May '48	32	1
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## IRIS

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Formation of Colorado Iris Society.....	Apr. '48	25	1/4
American Iris Society.....	June '49	26	1/2
Iris—Maximum Beauty for Minimum Effort, Richard D. Hall .....	June '49	26	1
How to Divide and Plant Iris*.....	June '49	28	2
Iris Hybridizing, H. M. Shulenburg*.....	June '49	30	1 1/2
For a Colorful Garden, Use Iris, H. M. Shulenburg.....	June '49	32	1 1/2
<i>White Iris</i> .....	Feb. '52	19	
Iris in the Alley, Dorothy M. Wagar*.....	Aug. '52	7	1
Iris, the Heart of Spring, Mr. and Mrs. O. T. Baker*.....	Apr. '53	39	2

## JUVENILE PROGRAMS

Juvenile Programs .....	Apr. '48	5	1/2
Reasons for Nature Training for Children, Paul W. Nesbit.....	Apr. '48	31	1 1/2
Colorado Needs a Nature Program, Paul W. Nesbit and George W. Kelly.....	June '48	6	3
Interesting Children in Gardening, Carl W. Herzman*.....	Aug. '48	8	2 1/2
Outdoor Education, Roberts Mann.....	Oct. '48	4	2
Colorado 4-H Horticultural Champions, Chas. M. Drage.....	Jan. '49	31	1
Denver County Extension Service.....	Feb. '49	19	1/4
Nature Education Dramatized for Children at the Morton Arboretum, Helen Bosworth*.....	Feb. '49	6	2

## LANDSCAPE DESIGN

The Colorado Landscape, S. R. DeBoer.....	Feb. '44	4	1 1/2
Re-Landscaping the Small Home, Quercus (Overplanting problems) .....	July '44	14	1 1/2
Windbreaks, Sanctuaries in the Plains.....	Jan. '45	6	1 1/2
Landscape Architecture Frames a Picture in a Garden, S. R. DeBoer*.....	July '45	21	1
Evergreens in Ornamental Planting, Kathleen Marriage*.....	July '45	11	2
Autumn Color, Mrs. M. J. Webber (Most Attractive Plants).....	Sept. '45	1	2
Beauty in Simplicity of Landscape Design, S. R. DeBoer*.....	Sept. '45	22	1
Trends in Ornamental Planting, Donald Wyman (New plants and design).....	Nov. '45	1	3
Winter Gardens, by S. R. DeBoer*.....	Jan. '46	21	1/2
Prepare Now for Your Five Year Garden Plan, M. W. Pesman (Planning your garden)*.....	Mar. '46	2	2
Maintenance and Material, Quercus.....	Mar. '46	21	3/4
Landscaping at the Home of Mrs. L. V. Woods (How to plant a garden)*.....	Sept. '46	10	2
Unusual Foundation Planting of Evergreens and Deciduous Material* .....	Sept. '46	12	2
Topsy-Turfy Grounds—or? M. Walter Pesman (Good drawings and illustrations)* .....	Nov. '46	3	6 1/2
Plants to Use for Landscaping, George W. Kelly.....	Jan. '47	4	11
Landscape Those Quonsets, M. Walter Pesman*.....	Jan. '47	20	2



SUBJECT	Issue	Page	Length in Pages
Our Native Flagstone Fits in Colorado Landscape Construc- tion, Andrew Larson*.....	Mar. '47	12	6
Landscape Design of the Country Home, R. B. Riclefs*.....	Mar. '47	18	1½
Industrial Landscaping, Maurice N. Marshall*.....	Sept. '47	4	2
The House That Mac Built*.....	Nov. '47	18	2½
The Weckbaugh Garden, Roy E. Woodman*.....	Jan. '48	15	4¼
Landscaping Your Home, Paul Bradford.....	Feb. '48	6	1
Espaliered Trees, Shrubs and Vines, Jessie M. Nevills*.....	June '48	14	2
A Garden That Fits*.....	Aug. '48	22	2
The Distant View, Stanley White.....	Aug. '48	24	1½
Church Grounds, Grace Church, Mrs. Kathleen Marriage*.....	Sept. '48	11	3½
Landscape That Mountain Home, M. Walter Pesman*.....	Sept. '48	19	4
Low Shrubs for Colorado Landscaping, George W. Kelly (Complete list of useful shrubs)*.....	Oct. '48	10	4
It Takes Good Design, Plants and Maintenance to Make a Good Garden*.....	Nov. '48	20	2
A Dream Come True, Beverly E. Finch*.....	Dec. '48	17	2
Winter Bloom in the Garden.....	Jan. '49	27	¾
Garden Interest, Jack Harenberg*.....	Feb. '49	8	1½
A More Beautiful America.....	Feb. '49	21	½
Check list for Landscape Planning.....	Mar. '49	15	½
Neff's Garden Had Its Face Lifted, Claire Norton*.....	Mar. '49	16	3¾
Roadside Stand*.....	Apr. '49	5	1
Fine Gardening, Myrtle R. Davis*.....	Apr. '49	10	2½
Color All Summer, Kathleen Marriage*.....	May '49	14	4
Design for Living—Outdoors, Ed Wallace.....	May '49	24	5
Living in Space, Jan Ruhtenberg*.....	June '49	34	4
Attractive Associations, Helen Fowler.....	July '49	19	¼
Planting Composition, Edmund Wallace (Modern design)*.....	July '49	28	4
August Gap, Julia Jane Silverstein (Blooms for hot weather)*.....	Aug. '49	14	4
Do Your Own Flagstone Work, George W. Kelly*.....	Aug. '49	24	2½
Modern Approach to Landscape Architecture, Edmund Wallace*.....	Sept. '49	12	5
The "Why" Behind Garden Design, Mrs. Persis Owen*.....	Oct. '49	10	3
Fall Color in Landscape Design, Edgar A. Johnson.....	Oct. '49	20	2
A Garden With Year 'Round Interest*.....	Dec. '49	18	2
Gardens Should Be Planned for Interest.....	Dec. '49	21	4
Plan Before You Plant, George W. Kelly (10 Steps in planning a garden)*.....	Jan. '50	6	12
All Colorado is Our Garden, Carl Feiss*.....	Jan. '50	18	3
A Season of Plant Color in Denver, George W. Kelly (Chart).....	Jan. '50	18	2
A Satisfying Little Garden*.....	Jan. '50	24	1½
The Donald C. Bromfield Garden*.....	Apr. '50	13	2
Landscape Adornment, W. R. Leslie (Some kinds hardy in Canada).....	May '50	20	4½
Garden Shelters (well Illustrated)*.....	July '50	16	6
A Silver-Gray Garden, M. Walter Pesman*.....	July '50	24	4
Ornamental Detail in Gardens, Mrs. Karl Arndt* (Well Illustrated) *.....	Aug. '50	24	8
The Little Red School House and Its Offspring (School landscaping)*.....	Sept. '50	6	5½
A Most Unusual Garden, Helen Fowler*.....	Sept. '50	18	2½
Gates*.....	Oct. '50	20	3
Consider the Fall Fruits for Color and Interest, George W. Kelly*.....	Oct. '50	6	4½
Gardening, An Art and a Science, Alex N. Klose.....	Dec. '50	28	1
A Garden of Fine Features, Joan Parry*.....	Dec. '50	18	2
Why Gardens Differ, M. Walter Pesman.....	Dec. '50	21	1



SUBJECT	Issue	Page	Length in Pages
Colorado Crossroads, Joan Parry*	Jan. '51	6	3
Our Garden Wasn't in the Budget, Myrtle R. Davis*	Jan. '51	18	3
Let Me Smell Your Garden, M. Walter Pesman	Jan. '51	9	1
Ten Ways to Control the Climate Around Your Home, American Association of Nurserymen	Jan. '51	10	5
They Practice What They Preach, George W. Kelly*	Jan. '51	21	4
Commercial Establishments May Be Attractive Too*	Feb. '51	18	2
A Secret Garden, Joan Parry*	Mar. '51	6	2
A Garden With Individuality, Joan Parry*	Apr. '51	10	2
Beauty With Utility, Martin R. Keul*	Apr. '51	28	2
There Can Be Gardens (Gardens over the state)*	May '51	20	5
Gardeners in Other Places, Joan Parry*	June '51	28	3
A Small Rock Garden, Wm. H. Lucking*	July '51	7	1
Eight Ways of Developing a Patio*	July '51	18	2
Roadside Businesses May Be Beautiful*	Aug. '51	17	1
A Good Shade Garden, Helen Fowler*	Aug. '51	18	2
A Spanish Garden in Pennsylvania, Joan Parry*	Aug. '51	28	1½
A Real Gardener's Garden*	Sept. '51	6	4
A San Francisco Garden, Joan Parry*	Sept. '51	22	3
A Modern Garden, M. Walter Pesman*	Oct. '51	9	½
Afraid of a Diagonal, M. Walter Pesman	Oct. '51	11	1½
Do you Have a Dee-Zee Garden, M. Walter Pesman	Nov. '51	8	½
Water in Home Gardens, M. Walter Pesman*	Nov. '51	9	½
Wild and Cultivated Gardens in the Pacific Northwest, Joan Parry*	Nov. '51	17	3½
Plants for Striking Effects (List)	Nov. '51	24	¾
Best Trees for all Purposes (Lists)	Nov. '51	25	½
Creating Your Garden the Modern Way, M. Walter Pesman	Dec. '51	19	1
Plan Before You Plant, George W. Kelly*	Jan. '52	6	3½
Plan for the Front of a Modern Home, Max Caproy*	Jan. '52	10	1½
Unique Plan, Jack Harenberg	Jan. '52	11	½
Plan for Landscape Development, Julia Jane Silverstein	Jan. '52	15	1½
How One Man's Garden Was Made, M. Walter Pesman	Jan. '52	20	5½
Detailed Plan for the Development of Grounds, Sam Huddleston*	Jan. '52	25	4
Wasted Nook Made Into Useful Outdoor Room, Mrs. G. R. Marriage*	Jan. '52	17	1
Practical Plan For a Small Garden, S. R. DeBoer*	Jan. '52	28	2
Plant America, It Pays	Feb. '52	17	½
Plant an All White Perennial Border, Helen Fowler	Feb. '52	18	3½
Notes on Structure of Garden Room, Lewis G. Smith	Mar. '52	7	1
How to Select the Right Plant for Each Situation, George W. Kelly (With lists)	Mar. '52	16	1
Our Gardens Should Have the Blues, Maud McCormick	Mar. '52	34	¾
Add Spice to Your Gardening with Culinary Herbs, Dr. Moras Shubert	May '52	8	1½
City Zoning, S. R. DeBoer	May '52	15	½
Let's Live in the Country, E. Wallace (Plans and Lists of Features)	May '52	18	4
Complete Planting Plan, R. U. Williams	June '52	12	2½
32 Ideas for More Interesting Gardens (Many illustrations)*	Aug. '52	10	8
Getting the Best of a Landscape Architect, M. Walter Pesman	Sept. '52	8	2
The Theme of This Garden Is Cactus	Sept. '52	13	3
Views, Screens, and Ground Covers*	Oct. '52	18	2
Let's Suppose—13 Garden Steps*	Nov. '52	6	4
What Not to Plant in a Small New Garden, Ruth Waring and Charlotte Barbour	Dec. '52	30	2
Plan in January for Pleasure in June, M. Walter Pesman	Jan '53	6	
I. Good Garden Design			2½



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II. Good Gardens are screened.....			4
III. How About Some Planting.....			2
IV. Plan Your Garden to Suit Your Family.....			5
V. Landscape Plans for Front Yards.....			2
Landscape Plans for Front Yards, S. R. DeBoer.....	Jan. '53	20	
Green Trees is the Old Town, M. Walter Pesman and Joe S. Folkner* .....	Feb. '53	12	3
Springtime, Dr. E. C. Wharfield.....	Mar. '53	14	3
My Neighbor's Garden, Vella Hood Conrad*.....	Apr. '53	22	1
The "Hundred Year Project," Dorothy Gould*.....	Apr. '53	24	2
Outdoor Dining Room*.....	Apr. '53	27	1
A Garden May Be Attractive in Winter, James B. Stewart*....	Apr. '53	34	2 1/2
Colorado Can Learn From Spain, Joan Parry*.....	May '53	30	3 1/4
Color in the Garden, Persis M. Owen.....	June '53	12	1 1/2
Beauty Is Good Business, Mrs. O. M. Holtz (Commercial Landscaping)* .....	June '53	40	2
Trees in Relation to Home Planting, M. Walter Pesman (Use of Shade Trees)*.....	July '53	12	6 1/2
The Theme of Landscaping in Boulder is Boulders.....	Sept. '53	18	2
Rocky Ford Landscapes Its Schools, Mrs. George Babcock.....	Sept. '53	12	1 1/2
Go Native, Wayne Nuzum*.....	Oct. '53	18	2
Landscaping the Small Yard, L. G. Woten.....	Oct. '53	20	2
Discipline Your Garden, Edna Jane Sprague*.....	Nov. '53	6	4
Create Pictures in Your Garden, Rose M. Pike.....	Nov. '53	16	1 1/2
Multiple Use of the Garden Plot, Rose Mansfield Pike.....	Nov. '53	22	2
The Family and Shade Trees, Mrs. Temperence O. Guptill.....	Dec. '53	8	4
A Young Man's Garden, Clair Robinson.....	Dec. '53	34	1
First Things in Planning Your Home Grounds, By M. Walter Pesman* .....	Jan. '54	8	12
Cash in on Your Grounds, Sam L. Huddleston.....	Jan. '54	26	1
Trees and Shrubs Cut Street Noises Fifty Percent.....	Feb. '54	15	1
To The New Homeowners, Herbert Gundell, Get started right .....	Feb. '54	18	2
Usefulness and Gardens, Sam L. Huddleston*.....	Mar. '54	17	2
Select Plants for 12-month Beauty.....	Mar. '54	23	1/2
Landscaping with Roses, M. Walter Pesman*.....	Apr. '54	14	2 1/2
Roses in the Landscape Plan, George M. Fisher*.....	Apr. '54	26	3
Surface Patterns and Textures, Harmon and O'Donnell*.....	May '54	18	1 1/2
Open Letter, Ken Fergumore.....	May '54	19	1
Vertical Elements of the Garden, Harmon and O'Donnell*....	May '54	26	3
Potted Roses Lend Special Fascination to Garden Terrace, Helen Fowler .....	May '54	30	1
Some Like it Hot, Sam L. Huddleston.....	May '54	44	1
Rose Garden Design, Maurice Marshall.....	May '54	46	1
My Chief Climate Problem and What I Do About It, M. Walter Pesman .....	June '54	12	1 1/2
Community Plants, George W. Kelly.....	June '54	16	4
Open Letter, Andrew S. Huddleman.....	June '54	20	1 1/2
Quercus (Queer-cuss) is Back.....	June '54	22	1
A Reply to Quercus, Ken Wilmore.....	July '54	28	1

## LAWNS

Weed Free Lawns a Fact, Armin Barteldes (Use of 2-4,D).....	May '46	8	2
Why Rake, George W. Kelly.....	May '46	3	3/4
The Care of Bent Grass Lawns, Frank Harris.....	Sept. '46	24	1 1/2
Lawn Making and Maintenance, Paul Morrow (Complete)*....	Mar. '47	6	6
Lawn Maintenance, J. Melvin Easterday.....	July '48	31	1/4
Planting and Care of Buffalo Grass Lawns, Geo. M. Fisher....	Mar. '50	16	1 1/4
Death in the Lawns! Leslie F. Paull (Mushrooms)*.....	Sept. '51	30	1
Why Roll a Lawn.....	May '52	28	1/2
In July It's the Lawn.....	July '52	6	2



SUBJECT	Issue	Page	Length in Pages
Improving Established Lawns, Armin Barteldes.....	Dec. '52	22	1
A Merian Blue Grass Lawn, J. L. Haines.....	Apr. '53	50	1/2
Lawns, the Carpets of the Garden (Complete Directions).....	May '53	10	4
Trees vs. Grass, Henry Gestefield.....	July '53	36	1
Seeding Lawns in Summer, Wayne Nuzum.....	Oct. '53	14	2
Merian Bluegrass is Worth the Price, Mr. and Mrs. W. F. Lairsmith .....	May '54	42	1
The Most Important Fifty Percent, Preparation of the Soil before Seeding a Lawn, George W. Kelly.....	Aug. '54	10	2
What Kind of Lawn Grass? By Herb Gundell.....	Aug. '54	12	2
Kentucky Bluegrass, Pioneer Extraordinary, Robert W. Schery* .....	Aug. '54	14	3
Care of Lawn After Seeding, L. D. Hammer.....	Aug. '54	17	1
Lawngrass Irrigation, George Beach.....	Aug. '54	18	2
What Kind of a Lawn Will You Have? Charles M. Drage*.....	Aug. '54	20	3
Where Do Turf Recommendations Originate, Charles M. Drage .....	Aug. '54	23	1
Lawn Care, Herbert C. Gundell.....	Aug. '54	24	2
A Gruesome Story, Robert W. Schery (Crabgrass).....	Aug. '54	26	2
Crabgrass .....	Aug. '54	26	
Lawn Pests, Gordon T. Mickle.....	Aug. '54	28	2
Common Lawn Diseases in Colorado, C. E. Seliskar.....	Aug. '54	30	2
What The Dry Spring Has Done to Lawns, Moras L. Shubert .....	Aug. '54	32	1 1/2
In Favor of Fall Seeding, Robert W. Schery.....	Aug. '54	33	1/2
Buffalograss From Seed, George M. Fisher.....	Aug. '54	34	1 1/2
High Altitude Lawns, Henry Gestefield.....	Aug. '54	35	1
The Husband-Gardener Becomes Lawn-Conscious, Helen Fowler .....	Aug. '54	36	1 1/2
Ground Covers For Use in Areas Where Grass Refuses to Grow, Helen Fowler.....	Aug. '54	38	1
Lawn Tools, Wendell Keller.....	Aug. '54	40	2
Drink Well, Lawn, Drink Well, Don Steele (Aeration)*.....	Aug. '54	42	1 1/2
Turf Grass Research at Colorado A & M College.....	Oct. '54	30	2

**LIBRARY**

Our Library (Plans for our library)*.....	Jan. '47	24	2
Periodicals Which Might be of Interest to our Members, Mrs. E. R. Kalmbach and George W. Kelly.....	May '47	16	1
More Magazines, Mrs. G. M. Jorgensen.....	Sept. '47	21	1
Four New Books.....	Nov. '47	23	1/4
Recent Acquisitions to the Library.....	Jan. '48	28	1
What is Adlumia Fungosa? Elsa T. Laybourn*.....	Feb. '48	14	1/2
Notes About the Library, Alice Wood.....	Mar. '48	28	1
Edward Wilson—Nature Lover, Alice Wood.....	Aug. '48	10	1/2
Make a Garden Scrapbook, Mrs. E. R. Kalmbach.....	Mar. '49	27	1
Books on Colorado Plants.....	Aug. '49	10	1/4
Armchair Gardening, Kathryn Kalmbach.....	Nov. '49	17	1
Book Reviews and Library Donors.....	Each Month	'50	
Book Reviews and Library Donors.....	Each Month	'51	
"Rocky Mountain Horticulture Is Different," Review by Helen Fowler .....	Apr. '51	30	1
"Water or Your Life", Review by Lady Penfold.....	May '51	36	1
Book Reviews and Library Donors.....	Each Month	'52	
A Natural History of Western Trees by Donald Culrose Peattie .....	Nov. '52	42	1
Book Reviews and Library Donors.....	Each Month	'53	

**MEMORIALS**

Living Memorials, Blue Star Drive, Mrs. F. S. Mattocks*.....	Mar. '47	28	1 3/4
Living Memorials as Lasting Tributes, Homer K. Dodge.....	May '47	14	1 1/2
Blue Star Highway Markers*.....	Nov. '48	25	1



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<b>MUSHROOMS</b>			
Death in the Lawns! Leslie F. Paull.....	Sept. '51	30	1
Wild Mushrooms of the Spring, Leslie F. Paull.....	June '53	43	3/4
<b>NATIVE PLANTS</b>			
Crassina grandiflora, Kathleen Marriage.....	May '44	8	3/4
Flowers Above the Clouds, Myrtle R. Davis (Alpine wild- flowers) .....	July '44	8	1
Natives, Quercus (Humorous).....	Sept. '44	13	1
Answers to Quercus Article on Natives (Humorous).....	Nov. '44	6	1
Pasque Flowers .....	Mar. '45	Cover	
Culture of Alpine Plants Under Lowland Conditions, Helen K. Fowler*.....	Mar. '45	14	4
Wood Lily .....	Mar. '45	15	
Yellow Lady Slipper.....	Mar. '45	15	
Marsh Marigold .....	Mar. '45	17	
Globe Flower .....	Mar. '45	17	
Mount Goliath Nature Study Area, Fred R. Johnson*.....	May '45	12	2
Southern Rocky Mountain Region Wildflowers for Colo- rado Gardens, George Morris Fisher (Wild flowers to cultivate)* .....	Mar. '46	18	3
Penstemon .....	Mar. '46	19	
Columbine .....	Mar. '46	18	
Mariposa Lily .....	Mar. '46	19	
Maidenhair Fern, Lucy F. Ela.....	May '46	17	1/2
Colorado Columbine .....	July '46	2	
Conspicuous Plants to Look for in the Central City Area, Mark and Claire Norton*.....	July '46	7	7
Baneberry .....	July '46	10	
Spring Beauty .....	July '46	10	
Snowball Saxifrage .....	July '46	11	
Mariposa Lily .....	July '46	11	
Canada Violet .....	July '46	11	
Wood Lily .....	July '46	12	
Pasque Flowers .....	Apr. '48	Cover	
An Easily Grown Wildflower, Frances Binkley*.....	May '48	16	1/2
Spiderwort .....	May '48	16	
Mertensia, Frances Binkley*.....	June '48	20	1/2
Wild Flower Conservation in the Far West, P. L. Ricker.....	June '48	21	1
So You Love the Wild Flowers, Florence W. Myers.....	July '48	12	1
Wild Flowers Suitable for Cultivation, L. J. Holland (Hardy perennials)* .....	July '48	20	1
Easter Daisy .....	July '48	20	
Bladderpod, F. Binkley.....	July '48	27	1/2
Colorado Columbine .....	Aug. '48	Cover	
Try a Columbine, J. R. Botleman.....	Aug. '48	2	1/2
Penstemons, Frances Binkley .....	Aug. '48	7	1/2
Do You Like Wild Iris, J. R. Botleman.....	Aug. '48	25	1/4
Wild Flower Gardening, Mrs. Theron R. Field.....	Aug. '48	31	1
Bush Morning Glory.....	Sept. '48	4	
Desert Fiesta, D. M. Andrews*.....	Sept. '48	5	5
Prickly Pear Cactus.....	Sept. '48	6	
Large Evening Star.....	Sept. '48	7	
Pineapple Cactus .....	Sept. '48	8	
Pincushion Cactus .....	Sept. '48	9	
Summertime Snowbank, D. M. Andrews*.....	Nov. '48	4	43/4
Glacial Buttercup .....	Nov. '48	5	
Globeflower .....	Nov. '48	6	
Parry's Primrose .....	Nov. '48	7	
Pasque Flower .....	Feb. '49	16	
Golden Banner .....	Feb. '49	16	



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Colorado Columbine .....	Feb. '49	17	
Daisy .....	Feb. '49	17	
Mariposa Lily .....	Feb. '49	18	
Beardstongue .....	Feb. '49	18	
Lewisia .....	Feb. '49	20	
Sand Lily .....	Apr. '49	Cover	
Two Choice Plants, Mrs. K. N. Marriage (Boykinia and Mertensia)* .....	Apr. '49	13	
Mertensia coriacea .....	Apr. '49	12	
Boykinia jamesi .....	Apr. '49	13	
Alpine Potentilla .....	June '49	21	
Wood lily .....	July '49	Cover	
Prickly Pear Cactus.....	July '49	9	
Yucca at Seed Time.....	July '49	9	
Wild Pink Geranium.....	July '49	10	
Golden Banner .....	July '49	11	
Indian Paint Brush.....	July '49	11	
Gaillardia .....	July '49	11	
White Violet .....	July '49	12	
Dusky Penstemon .....	July '49	13	
Mountain Arnica .....	July '49	13	
Chiming Bells .....	July '49	13	
Polemonium .....	July '49	15	
Pyrola .....	July '49	15	
Baneberry .....	July '49	15	
Red Elephant .....	July '49	15	
Alpine Clover .....	July '49	16	
Snow Butternut .....	July '49	16	
Alpine Phlox .....	July '49	17	
Parry's Primrose .....	July '49	17	
Alpine Pink .....	July '49	17	
Alpine Potentilla .....	July '49	17	
Wild Flowers Have Decided Preferences, Frederica LeF. Bellamy .....	July '49	18	13/4
Wild Flowers in August, George W. Kelly (Mt. Goliath nature study area) .....	Aug. '49	4	1 1/2
Reseeding Colorado Wild flowers, L. J. Holland.....	Aug. '49	30	1 1/4
Milkweed .....	Oct. '49	8	
Miners Candle .....	Oct. '49	8	
Evening Star .....	Oct. '49	8	
Oregon Grape .....	Dec. '49	Cover	
Native Christmas Greens*.....	Dec. '49	6	2
The Christmas Tree, Erne H. Shubert.....	Dec. '49	9	3 1/2
Finding Spring, Minna F. Dickinson*.....	Feb. '50	7	2
Yellow Violet .....	Feb. '50	6	
Sand Lily .....	Feb. '50	6	
Spring Beauty .....	Feb. '50	7	
We Found Spring, Kathryn Kalmbach*.....	Apr. '50	14	1
Some Spring Flowers to Look For, L. J. Holland*.....	Apr. '50	15	8
Easter Daisy .....	Apr. '50	16	
Trailing Phlox .....	Apr. '50	16	
Pyrola .....	Apr. '50	17	
Twinflower .....	Apr. '50	17	
Skullcap .....	Apr. '50	17	
Snowball saxifrage .....	Apr. '50	17	
Chickweed .....	Apr. '50, 18; July '50	11	
Globeflower .....	Apr. '50	19	
Pincushion cactus .....	Apr. '50	20	
Dwarf Cornel or dogwood.....	Apr. '50	22	
False Solomon's Seal.....	Apr. '50	22	



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Wild Flowers in June*.....	June '50	30	2
Wild Strawberry .....	July '50	7	
Prickly pear cactus.....	July '50	10	
Annual Sunflower .....	July '50	12	
Wild Onion .....	July '50	13	
Yucca glauca .....	July '50	Back Cover	
Edible Wild Plants of the Rocky Mountain Region, Helen Marsh Zeiner (Well illustrated)*.....	July '50	6	8
Wood Lily .....	Aug. '50	10	
Some References on Rocky Mountain Botany, Ruth Nelson (Book list) .....	Sept. '50	32	1
Native Flowers of Garden Value, L. J. Holland*.....	Sept. '50	12	4½
Shooting Star .....	Sept. '50	12	
Tulip Gentian .....	Sept. '50	12	
Snow Lily .....	Sept. '50	12	
Red Columbine .....	Sept. '50	13	
American Monkshood .....	Sept. '50	13	
Red Beardstongue .....	Sept. '50	14	
Cone Flower .....	Sept. '50	14	
Puccoon .....	Sept. '50	15	
Harebell .....	Sept. '50	24	
Cattails* .....	Oct. '50	32	1
Common Milkweed .....	Jan. '51	15	
The Flannel Mullein*.....	Mar. '51	32	1
Mosses and Lichens, Helen Marsh Zeiner*.....	Apr. '51, 6: May '51	18	5
True Mountain Mahogany*.....	Apr. '51	14	1½
Erythronium parviflorum .....	Apr. '51	20	
Mariposa Lily .....	May '51	15	
Gaillardia .....	June '51	11	
Thimbleberry .....	July '51	Cover	
Colorado Cacti, M. Walter Pesman.....	Aug. '51	6	5
Prickly Pear .....	Aug. '51	8	
Hunger Cactus .....	Aug. '51	8	
Devils Claw Cactus.....	Aug. '51	9	
Snowball Cactus .....	Aug. '51	10	
A Summing Up, Claire Norton (Growing the Natives in Your Garden)* .....	Sept. '51	8	12
Dogtooth Violets .....	Sept. '51	8	
Yellow Violet and Sand Lily.....	Sept. '51	8	
Wild Onion, Allium.....	Sept. '51	9	
Blue Flag .....	Sept. '51	9	
Mariposa Lily .....	Sept. '51	9	
Marsh Marigold .....	Sept. '51	10	
Green Orchid .....	Sept. '51	10	
Globeflower .....	Sept. '51	10	
Red Columbine .....	Sept. '51	11	
Rocky Mountain Columbine.....	Sept. '51	11	
Am. Monkshood .....	Sept. '51	12	
Alpine Poppy .....	Sept. '51	12	
Yellow Stonecrop .....	Sept. '51	13	
Snowball Saxifrage .....	Sept. '51	13	
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Pyrola .....	Sept. '51	14	
Wild Pink Geranium.....	Sept. '51	14	
Shooting Star .....	Sept. '51	15	
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Dusky Beardstongue .....	Sept. '51	17	
Penstemon secundiflorus .....	Sept. '51	17	



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The Rocky Mountain Columbine, Henry Gestefeld.....	Dec. '51	17	1
Other Colorado Columbine, William A. Weber.....	Feb. '52	26	2
Persistent Fruits (Fruits of some native woody plants).....	Feb. '52	28	1 1/4
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Cattail .....	July '52	11	
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Puccoon, Lithospermum .....	Aug. '52	9	
Milkweed (Bloom and Pods illustrated).....	Sept. '52	30	
Wildflowers Require No Passport, M. Walter Pesman.....	Oct. '52	22	3/4
Broomrape .....	Apr. '53	53	
Parasitic Plants .....	Apr. '53	52	1
Calypso Orchid .....	Apr. '53	52	
Coral Root .....	Apr. '53	53	
Wildflowers on the Plains, Mrs. Mary Ormsbee.....	Sept. '53	35	1/2
A Sleeping Beauty of Foothills and Plains, Mildred Steele* .....	Oct. '53	8	2
Alpine Treasure Hunting, William A. Weber.....	Oct. '53	32	3 1/2
The Trials of an Amateur Botanist, John Hartwell.....	Nov. '53	20	2
Oregon Grape, Kids of 8 to 80.....	Dec. '53	32	1
Oregon Grape .....	Dec. '53	32	
Prickly Poppy .....	June '54	18	
Evening Star .....	June '54	19	
Yucca .....	Oct. '54	16	1
Penstemon .....	Oct. '54	17	
Gilia pungens .....	Oct. '54	18	
Miner's Candle .....	Oct. '54	19	
Cactus .....	Oct. '54	18,19,20	
Trailing Phlox .....	Oct. '54	20	
Evening Primrose .....	Oct. '54	21	1

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The Grand Mesa of Colorado, Roy T. Williams*.....	July '47	15	6
Association Defends National Forests.....	Jan. '48	20	1 1/2
How the National Forests Came to Be*.....	Feb. '48	10	4 1/2
Wheeler National Monument*.....	Nov. '48	16	3
Consider all the Values, George W. Kelly (Echo Park dam)* .....	Jan. '50	21	3
More Than a Dam Site, George W. Kelly.....	Mar. '50	29	1/4
To Keep the Future Green, Don Bloch*.....	Aug. '50	22	2 1/2
Grazing Situation in Roosevelt Forest, George W. Kelly*.....	Aug. '50	24	1 1/2
Crucial Year for Beetle Control, Don Bloch*.....	Oct. '50	24	2 1/2
Freedom of the Wilderness, George W. Kelly*.....	Nov. '50	16	2
Echo Park Dam in Dinosaur National Monument Is Not Needed, Mrs. Charles O. Miller*.....	June '51	16	2
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Boating Down the River, George W. Kelly*.....	Oct. '51	16	2
Stick to Your Guns Secretary, George W. Kelly.....	Jan. '52	23	1/2
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Westward—On to the Dinosaur*.....	June '52	12	3
Big Dam Foolishness, Elmer T. Peterson.....	June '52	13	1



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Sierra Club on Dinosaur.....	Aug. '52	22	1/2
We See the Sequoias, Mrs. Frank McLister.....	Sept. '52	22	1 1/4
Parks and Wilderness*.....	Oct. '52	30	1
Conflicting Land and Water Uses.....	Nov. '52	33	1/2
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Do You Care? George W. Kelly (Dinosaur).....	May '53	17	1
How About Dinosaur.....	Nov. '53	41	1/4
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What Are National Parks? Conrad L. Wirth*.....	Feb. '54	2	1
See For Yourself (Dinosaur Monument)*.....	Mar. '54	6	1
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## NATURE NOTES

Colorado Needs a Nature Program, Paul W. Nesbit and George W. Kelly*.....	June '48	6	3
The Balance of Nature, Randall Henderson.....	July '48	11	3/4
Wisdom from the Desert, Randall Henderson*.....	Nov. '48	31	1
Persistent Fruit .....	Feb. '52	28	1 1/4
The First Wildflowers*.....	May '52	26	1
Look and Leave*.....	June '52	28	1
Varmints* .....	July '52	26	1 1/2
A Bug With Friends and Enemies (Aphids).....	Aug. '52	28	1 1/2
The Versatile Milkweed.....	Sept. '52	30	1 1/2
Milkweed .....	Sept. '52	30	
Seed Travelers .....	Oct. '52	21	1
Cordage .....	Nov. '52	30	3/4
Parasitic Plants* .....	Apr. '53	52	1
Oregon Grape* .....	Dec. '53	32	1
Skunk and Porky*.....	Feb. '54	38	1
Handprints of the "Old Ones"*.....	May '54	48	1
Nature, Master Sculptor (Weather-worn Rocks)*.....	July '54	18	2
The Hard Way, Randall Henderson.....	Oct. '54	4	1

## NATURE TRIPS

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Gothic Botanical Trip, George W. Kelly*.....	Sept. '47	8	1 1/2
Denver Parks Flower Trail, S. R. DeBoer (Annuals in bloom)* .....	Sept. '47	17	4
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Gore Range Botannical Trip, Kathryn Kalmbach.....	Nov. '47	11	1/4
"Far Away Places" Are Sounding Off, Anna Timm*.....	Apr. '49	20	1 1/2
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Trip to see Colorado's Wildflowers in July, George W. Kelly* .....	July '49	8	10
Wildflowers in August, George W. Kelly*.....	Aug. '49	4	1 1/2
Mountain Trip in September, George W. Kelly*.....	Sept. '49	17	2
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Practices & Values in Outdoor Education, Raymond Gregg*.....	Aug. '50	6	1
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Back-Pack Trip into the Snowmass-Maroon Country, Anna Timm* .....	Sept. '51	28	1 1/2
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Knowing Plants vs. Knowing Their Names Only, Grace G. Freeman .....	Mar. '48	6	1/2
Why We Use Scientific Plant Names, L. J. Holland.....	Oct. '50	10	1 3/4
Horticultural Nomenclature .....	Dec. '50	27	1/2
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An Official Name for Each Plant, M. Walter Pesman.....	Apr. '51	12	2 1/2
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The Best in the Old and the New Phlox, Roy Rodgers (Varieties for Colorado)*.....	May '45	4	3
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Growing Chrysanthemums in Colorado, Mrs. L. L. Johnson (Kinds and uses).....	Sept. '45	3	3
Newer Perennials for Colorado Gardens, Maud McCormick.....	Sept. '46	7	1
How to Plan Your Perennial Border, Alice Wood.....	Sept. '46	22	1 1/4
Perennials, George W. Kelly (Brief Lists).....	Jan. '47	9-14	1/2
Lists of Perennials for the Plains.....	Mar. '47	24	1/4
A Few Little-Known Facts About Some Well-Known Plants and Other Notes, Helen Fowler (Culture of Delphin- iums, Peonies, Tulips, etc)*.....	Jan. '48	22	3
List of Perennials for Landscape Use in the Mountains*.....	Feb. '48	27	1/4
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Chrysanthemums Thrive in High Mountains, Benjamin Draper* .....	May '48	15	1
Two Long-Blooming Perennials, Maud McCormick.....	June '48	5	1/2
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History Makes Old Favorites Glamorous, Frances Binkley*.....	May '49	14	5
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August Gap, Julia Silverstein.....	Aug. '49	14	3 1/2
Pest-Free Perennials, Maud McCormick.....	Aug. '49	22	1
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Little Plants that Like Our Gardens, Maud F. McCormick.....	Dec. '51	6	1
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New Plants, New Fun, Dr. Moras Shubert.....	June '52	16	1 1/2
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## PLANT PESTS AND DISEASES

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Spruce Beetle Infestation Follows Big Blow Down, John W. Spencer (Start of Spruce Beetle Infestation)*.....	Jan. '45	9	2
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He Has No Enemies—So He Lost His Shell, Richard Headstrom (Garden slug).....	July '48	28	1
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To Evergreens That Are in Trouble, Wm. H. Lucking*.....	July '51	8	2
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Garden Woes That Crawl, Herbert Gundell.....	Aug. '53	30	1
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Aquilegia—Columbine, L. J. Holland.....	Mar. '52	28	1 1/2
Campanulaceae—Bellflower Family, L. J. Holland.....	Apr. '52	10	2
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Solanaceae—Nightshade Family, L. J. Holland.....	July '52	8	2
Boraginaceae—Borage Family, L. J. Holland.....	Aug. '52	8	2
Malvaceae—The Mallow Family, L. J. Holland.....	Sept. '52	24	1 1/2
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## PLANTING

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After the Builders Leave—Then What? George W. Kelly.....	Feb. '52	6	1 1/2
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Let's Keep That Distance, Sam Huddleston.....	May '53	28	3/4
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How to Plant, Herbert Gundell*.....	Feb. '54	12	3

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Colorado Plant Zones—Map, George W. Kelly.....	Mar. '45	12	2
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Deciduous Trees for Colorado Plains, Zones 7 and 9, George W. Kelly (Recommended varieties)	May '46	12	2½
Conspicuous Plants to Look for in the Central City Area, Mark and Claire Norton*	July '46	7	7
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More Plants for the Plains, George W. Kelly (Lists of plants)*	Mar. '47	20	7
Horticulture in the Arkansas Valley, George W. Kelly*	May '47	6	8
Observations on Winter Trees of the Western Slope, Mary B. Plaisted*	Feb. '48	23	3
Some Plants for Landscape Use in the Mountains (Lists)*	Feb. '48	27	2
Horticulture in the Grand Valley	Mar. '48	5	½
Hardy Plant Material for High Altitudes, Mrs. H. E. Combs*	May '48	12	2½
Chrysanthemums Thrive in High Mountains, Benjamin Draper*	May '48	15	1
Horticulture In Boulder	Jan. '49	21	3¾
High Altitude Gardening, Mrs. G. J. Bailey*	Feb. '49	20	1½
Some Plants Which are Likely to Tolerate Alkaline Con- ditions in Colorado	Apr. '49	9	½

PRUNING AND SHADE TREE CARE

Tree Trimming for Colorado, George W. Kelly (Reasons and Methods)	Nov. '44	7	1
Why Do We Prune Shrubs, D. W. Spangler*	July '45	7	3
Trimming Hedges, Kathleen Marriage*	Jan. '46	11	2
Pruning Evergreens, Robert E. More	May '46	2	6
Trimming, John W. Swingle*	Mar. '48	10	1
Outline of a Program for Tree Care in Colorado	Apr. '49	21	½
Your Trees Are Valuable, George M. Fisher (They Should Have Expert Care)	Dec. '49	16	2
The Detrimental Stub	Jan. '50	32	1
Shade Tree Care, George M. Fisher	Feb. '50	31	1½
Scientific Tree Care (Complete and well illustrated)*	June '50	7	13
Do You Know When to Prune Shrubs, Helen Fowler*	Apr. '50	11	½
Winter Injuries of Shade and Ornamental Trees, W. D. Thomas, Jr.*	Jan. '51	16	2
Look to Your Trees	Jan. '51	27	½
Trees and Their Relationship to Your Electrical Service, A. E. Perraten*	Feb. '51	20	3
Trees and Safety, George S. Stadler	Dec. '51	13	½
Transplanting Large Trees, George W. Kelly	Feb. '52	9	2
Repair Storm Damaged Trees	Mar. '52	15	¼
Dead Trees Harbor Pests	May '52	17	½
Food For Your Trees	May '52	32	1
Good Intentions Can Get You Nowhere! John Swingle	Oct. '52	17	1
Ailing Trees Need More Than Guesswork*	Oct. '52	17	1
Strengthen Trees Against Storm Damage, Shade Tree Digest	Nov. '52	14	½
Deep Watering for Trees	Nov. '52	34	1
Your Trees Deserve Good Care	Nov. '52	21	¾
On Whom to Depend	Dec. '52	12	1
The Electric Wire Problem, Robert E. More*	Dec. '52	34	2
The Fundamentals of Pruning, L. C. Chadwick	Feb. '53	9	½
Unpruned Stubs*	Feb. '53	15	1
Pruning Ornamental Shrubs and Trees, Donald Wyman	July '53	20	3
Forstall Tree Trouble, Shade Tree Digest*	Oct. '54	24	2



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Try This on Your Camp Fire, Anna Timm.....	June '49	7	1/2
Chicken Surprise, Anna Timm.....	Aug. '49	23	3/4
And a Merry Christmas to You!.....	Dec. '52	54	1
Horticultural Hand Lotion, Helen Fowler.....	Jan. '53	8	1/4
Let's Make Pomander Balls, Kathryn Kalmbach.....	Dec. '53	12	1 1/2
<b>ROASIDE PARKS AND PLANNING</b>			
Living Memorials, Blue Star Drive, Mrs. F. S. Mattocks.....	Mar. '47	28	2
An Easterner Looks at Colorado, John M. S. Emory.....	May '47	15	1/2
Blue Star Highway Markers.....	Nov. '48	25	1
Sales House of Mark and Claire Norton*.....	Apr. '49	5	1
Colorado Roadsides* .....	Sept. '49	38	2
Our Littered Highways, Edna Wolfe*.....	Mar. '50	18	1/2
Colorado Roadsides* .....	Nov. '50	26	1
Blue Star Memorial Highway.....	Jan. '51	26	1
Colorado's Blue Star Highways*.....	Dec. '51	16	1
Trees—Their Place in the Complete Highway, Karl Dressel....	Feb. '53	8	1 1/2
Roadside Planning at Swink*.....	Sept. '53	16	1
Roadside Development is Important to Colorado.....	Jan. '54	28	1/2
Roadside Development of Colorado Highways, Clyde E. Learned* .....	Feb. '54	24	3
Other States Do Have Attractive Roadside Parks*.....	June '54	29	1/2
Roadside Development, Elinor Kingery*.....	Sept. '54	40	1 1/2
<b>ROCK GARDENS AND POOLS</b>			
Rock Gardens, Kathleen Marriage*.....	Mar. '46	11	1
Rock Garden Plants, Lorene Smith (List of suitable plants)....	Sept. '48	27	1 1/4
Rock Gardens for Colorado, L. J. Holland*.....	Feb. '49	16	3
Building a Rock Garden, Geo. A. Amidon*.....	Mar. '49	20	2 1/2
Little Flowers, Myrtle R. Davis*.....	Oct. '49	24	1
Landscape Use of Rocks*.....	Nov. '49	6	2
Rocks and Pools in a City Garden (Dr. Sawyer's)*.....	Nov. '49	9	3
Rock Garden Solves a Problem, Roy E. Woodman (Lists for Colorado Use)*.....	Nov. '49	18	4
Building a Pool, George W. Kelly*.....	Nov. '49	22	6
A Small Rock Garden Design, Wm. H. Lucking*.....	July '51	7	1
My Rock Garden, Mrs. Agnes Magnuson*.....	June '53	23	1
New Rock Gardens, Mrs. Fred Shortt (In Boulder)*.....	Oct. '53	6	2
Rock Gardening in Boulder, Marion I. Alexander*.....	Oct. '53	10	4
The Desert Garden, D. M. Andrews*.....	Oct. '54	16	6
<b>ROSES</b>			
It's Easy to Grow Roses, Frank M. Richards (Complete culture) .....	Nov. '45	12	4
Roses, George W. Kelly (Brief List).....	Jan. '47	8	1/4
All American Rose Selections, Chas. M. Drage.....	Nov. '47	30	1
Rose Notes, W. H. Hoefle.....	Nov. '47	14	1 1/4
Accent Your Garden with Roses, Florence W. Myers*.....	Jan. '48	6	2
Winter Maintenance, K. N. Marriage.....	Jan. '48	27	1
Modern Trends in Rose Growing, R. C. Allen.....	Nov. '48	19	3/4
My Experiences with Roses, Maurice N. Marshall (lists and culture) .....	Mar. '49	8	2 1/4
Preparation of the Rose Bed, A. E. Albera.....	Apr. '49	8	1 1/2
There is an Upturn in the Trend of Rose Growing in America, Robert Pyle*.....	June '49	10	3 1/2
Peace and Pixie Roses.....	June '49	12	
Start With the True and the Tried, R. C. Allen (with lists)....	June '49	13	3/4
Rose Garden Design, Maurice N. Marshall*.....	June '49	14	1
Tom Thumb Rose.....	June '49	15	



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Propagation of Roses, L. J. Holland*	June '49	16	2
How to Plant a Rose*	June '49	19	1
Consider the Roses, G. W. Kelly and E. Moore*	June '49	20	2
How Good are the New Roses? M. Walter Pesman	Feb. '50	23	1/4
Roses in Pots, Frank Richards	Mar. '50	27	1 1/2
Roses are Waking from Winter Sleep (Seasonal Care)	May '50	25	1
<i>Altai Rose Bush</i>	May '50	23	
Winter Protection of Roses, A. E. Albera	Nov. '50	11	1
Chlorosis in Roses, F. B. Wann	Nov. '50	28	1
Old Roses, Lula Rose Morse*	May '51	25	3
Types of Roses, Mrs. E. J. Maynard	May '51	28	1
Ten Best Roses for Denver, Mrs. Homer S. Hoisington	May '51	29	2
Culture of Roses, Mrs. E. J. Maynard	May '51	31	3/4
Fertilizing and Mulching Roses, Mrs. E. C. Horne	May '51	31	1/2
Protecting Roses, Mrs. Homer S. Hoisington	May '51	32	1/4
Enemies of the Rose, Mrs. Frank Smay	May '51	32	1 1/2
<i>A Rose in Color</i>	Sept. '51	Back Cover	
You Can Grow Roses, Vella Hood Conrad	Dec. '51	8	2 1/4
Anyone Can Grow Roses, American Ass'n. Nurserymen	Apr. '52	26	1
A Colorful Rose Garden at Caldwell, Idaho, M. Walter Pesman*	May '52	10	1
Rose Notes, Vella Hood Conrad	June thru Nov. '52		4 1/2
Rose Notes, Vella Hood Conrad	Jan. '53	24	1 1/4
How I Grow Good Roses, Mrs. Harold Libby	Apr. '53	15	2 1/2
What Makes a Rose, I, E. L. D. Seymour	Apr. '53	53	1/2
What Makes a Rose, II, E. L. D. Seymour	May '53	28	1/2
A Few Notes on Some Roses of Other Days, Helen Fowler	May '53	46	1
A Message of Good Will from a Fellow Who Likes Roses, Arthur L. Simpson	June '53	30	2
What Does Columbus Have That We Don't Have? (A Rose Garden)	Aug. '53	18	2 1/2
Hail Storm, Mrs. H. C. Marshall	Sept. '53	15	1/2
Verses	Apr. '54	2	1
<i>Rose, The Doctor</i>	Apr. '54	3	1
The Denver Rose Society, Lou Appeldorn	Apr. '54	12	1 1/2
Landscaping with Roses, M. Walter Pesman*	Apr. '54	14	2 1/2
Types of Roses, Mr. and Mrs. E. J. Maynard*	Apr. '54	16	4
Four Roses, K. N. Marriage*	Apr. '54	20	1
<i>Rosa hugonis</i>	Apr. '54	20	
Great Grandmother Rose	Apr. '54	21	1
<i>The Moss Rose</i>	Apr. '54	21	1
Climbing Roses, John S. Bouslog, M.D.*	Apr. '54	22	1
Miniature Roses, Vesta Turnure*	Apr. '54	23	1
My Ten Best Roses, Elsa K. Jones	Apr. '54	24	1 1/2
<i>Peace and Pixie Roses</i>	Apr. '54	24	
Roses in the Landscape Plan, George M. Fisher	Apr. '54	26	3
Preparation of Your Rose Bed, Jack N. Withers	Apr. '54	29	1
Rose Culture in Fort Collins, Martha B. Jordan	Apr. '54	30	1 1/2
Greetings to New Rose Growers, Clair Robinson	Apr. '54	31	2 1/2
One Man's Opinion of Winter Protection of Roses, Roy T. Littlejohn	Apr. '54	34	1
A Denver Rose Garden, S. R. DeBoer	Apr. '54	35	1
Denver Botanic Garden, Rose Garden Section (plan)	Apr. '54	36	2
Plant Roses Early, A. E. Albera	Apr. '54	38	1 1/2
Simple Facts About Fertilizing Roses, P. B. Smith	Apr. '54	40	1 1/2
Roses in Europe, A. E. Albera	Apr. '54	42	1 1/2
Disease and Insect Control, Vella Hood Conrad	Apr. '54	44	1/2
What Makes a Good Show, Lloyd Woodward	Apr. '54	45	1/2
Showing Roses, Charles A. Vollick*	Apr. '54	45	3



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Using Roses Indoors, Sue Kelly*.....	Apr. '54	50	4 1/2
Let's Get Down to the Root of the Problem, Moras L. Shubert .....	Apr. '54	55	2 1/2
Potted Roses Lend Special Fascination to Garden Terrace, Helen Fowler .....	May '54	30	1
Rose Garden Design, Maurice Marshall.....	May '54	46	1
Are The New Roses Better? A. L. Simpson.....	July '54	10	1
Colors in Rose Blooms Satisfy, Planting News.....	Oct. '54	15	1/2

## SEASONAL SUGGESTIONS

Gardening by the Month, Chas. M. Drage.....	Apr. '44	Ent. Issue	16
Seasonal Sugestions .....	May '44	Back Cover	
Garden Calendar .....	July '44	Back Cover	
Garden Calendar .....	Sept. '44	Back Cover	
Seasonal Suggestions .....	Nov. '44	Back Cover	
Seasonal Suggestions .....	Jan. '45	Back Cover	
Seasonal Suggestions .....	Mar. '45	Back Cover	
Seasonal Suggestions .....	May '45	Back Cover	
Do You Have a Green Thumb? George W. Kelly.....	May '46	2	2
Stray Leaves In the March Wind.....	Mar. '47	30	2
July-August Work in the Garden.....	July '47	31	1
Fall Work .....	Sept. '47	30	1
Don'ts, Jack Harenberg*.....	Nov. '47	27	3/4
In My Garden.....	Nov. '47	10,15	
		21,29,31	4 1/2
Week End Gardener Paragraphs in each month.....	1948		
March Gardening .....	Mar. '49	32	1
April Gardening .....	Apr. '49	27	1 1/4
May Gardening Guide.....	May '49	36	1
Gardening Reminders For June '49.....	June '49	41	1
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August Gardening .....	Aug. '49	10,35	1 1/2
September Gardening .....	Sept. '49	37	1
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December Gardening .....	Dec. '49	34	1
Season for Plant Color in Denver (Chart)*.....	Feb. '50	18	2
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Have You? Helen Fowler.....	Feb. '51	25	1/2
What Shall I Plant in the Fall, George W. Kelly (What and How)* .....	Oct. '51	6	2
October Gardening* .....	Oct. '51	21	4
Notes for December, Helen Fowler.....	Dec. '51	28	1
Now Is the Time to.....	Jan. '52	35	1
Gardening to Be Done in February.....	Feb. '52	35	1
What Can a Gardener Do in March.....	Mar. '52	39	1
April Care Will Pay With Better Flowers in May.....	Apr. '52	34	2
Gardening Gay in Merry May.....	May '52	39	1/2
June the Month of Brides and Bugs.....	June '52	6	2 1/2
In July Its the Lawn.....	July '52	6	2
August Garden Reminders.....	Aug. '52	6	1
Garden Notes for September.....	Sept. '52	6	2
Garden Notes for October.....	Oct. '52	6	2
13 Garden Steps.....	Nov. '52	6	2
Some January Activities for Gardeners, Moras L. Shubert.....	Jan. '53	26	1 1/2
Flowers That Interpret the Spring, Helen Fowler.....	Apr. '53	45	1
Monthly Garden Notes.....	'53	Inside Back Cover	
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Seeds and Season.....	Apr. '49	31	1
Plant Breeding Possibilities and Techniques for Western Horticulture (Very Complete).....	July '51	10	5
Growing Lilies from Seed.....	July '51	20	3
Bees, Flowers & Plant Breeding.....	Apr. '52	14	4 1/2
A Modern Way to Start Seeds.....	Mar. '53	26	3/4
<b>SHADE HOUSES</b>			
A Lath House for Colorado, Myrtle Ross Davis*.....	Aug. '48	14	2
<b>SHRUBS</b>			
Hawthorns for Colorado, George W. Kelly (Recommended kinds) .....	July '44	4	1 1/2
Lilacs for Colorado, Milton J. Keegan (Culture and varieties with pictures).....	Dec. '44	Entire Issue	
Viburnums for Colorado, George W. Kelly (Hardy Vari- eties)* .....	Jan. '45	1	2 1/2
Honeysuckles for Colorado, George W. Kelly (Varieties and Uses)* .....	May '45	19	3
Why Do We Prune Shrubs, D. W. Spangler*.....	July '45	7	3
Puzzler, Charles Kelly (Redbud)*.....	Nov. '45	16	2 1/2
Hedges for Colorado, George W. Kelly (Complete List of Materials and Uses)*.....	Jan. '46	3	6
Observations on Hedges, Robert E. More*.....	Jan. '46	9	2
The Colorado River Redbud Puzzler, H. L. Camp.....	Jan. '46	19	3/4
Xanthoceras sorbifolia, Mrs. Paul Murdock*.....	May '46	18	1
Rocky Mountain Birch.....	July '46	8	
Rocky Mountain Alder.....	July '46	8	
Rocky Mountain Maple.....	July '46	9	
Thimbleberry .....	July '46	9	
Mountain Mahogany .....	July '46	9	
Kinnikinnick .....	July '46	10	
Shrubs, George W. Kelly (Brief lists)*.....	Jan. '47	6	1
Lists of Shrubs for the Plains.....	Mar. '47	24	1/4
Lists of Shrubs for the Arkansas Valley.....	May '47	13	1/4
Lists of Shrubs for Landscape Use in the Mountains*.....	Feb. '48	27	1/4
Cliff Jamesia .....	Feb. '48	28	
A Five Star Shrubbery Border, Edmund Wallace (Considers Shrubs for Flower, Fruit and Fall Color)*.....	Apr. '48	10	2
Native Thimbleberry .....	May '48	12	
Hardy Plant Material for High Altitudes (Very complete).....	May '48	12	2 1/2
Low Shrubs for Colorado Landscaping, George W. Kelly (Complete List of Useful Shrubs).....	Oct. '48	10	4
Broad Leaf Evergreens, Clair Robinson.....	Dec. '48	4	2
Oregon grape—Mahonia aquifolium.....	Dec. '48	4	
Dolgo Crab .....	Feb. '49	20	
Native Shrubs, Geo. Kroh.....	Mar. '49	13	1/2
Have You Seen Prinsepia? M. Walter Pesman.....	Apr. '49	7	1/2
New and Unusual Plants, Wm. Lucking, Jr.....	Apr. '49	14	2
Consider the Roses, G. W. Kelly and E. Moore*.....	June '49	20	2
Wild Plum .....	June '49	21	
Plant Portraits, The Cotoneasters, Frank Richard.....	Nov. '49	28	1 1/4
Shrubs for Colorado (Alphabetical lists with descriptions)*.....	Feb. '50	9	10
Shrubs Classified as to Height and Use.....	Feb. '50	20	1 1/2
Open Season on Menodora.....	Feb. '50	32	1/2
Do You Know When to Prune Shrubs? Helen Fowler.....	Apr. '50	11	1/2
Lilacs, D. M. Andrews (Why Plant Them).....	May '50	6	2
Hawthorns, M. Walter Pesman (Hardy Species)*.....	May '50	11	9



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Landscape Adornment, W. R. Leslie (Some Plants Hardy in Canada)* .....	May '50	20	4½
Chokecherry .....	Apr. '50	19	
Rhododendron albiflorum .....	Apr. '50	24	
English haw .....	May '50	11	
Cockspur thorn .....	May '50	12, 18	
Dotted hawthorn .....	May '50	12, 19	
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Pear hawthorn .....	May '50	13	
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Altai Rosebush .....	May '50	23	
Native Oregongrape .....	July '50	6	
Wild gooseberry .....	July '50	8	
Yellow flowering currant.....	July '50	8	
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The Villians of the Barberry Family, E. A. Lungren*.....	Sept. '50	20	1½
Consider the Fall Fruits for Color and Interest, George W. Kelly* .....	Oct. '50	6	4½
American Cranberrybush .....	Oct. '50	6	
Redosier Dogwood .....	Oct. '50	8	
Bunchberry Elder .....	Oct. '50	8	
Wafaring tree .....	Oct. '50	8	
Colorado Hawthorn .....	Oct. '50, 8; July '50	9	
Washington Hawthorn .....	Oct. '50	9	
Common Bladdersenna .....	Oct. '50	9	
Western Chokecherry .....	Oct. '50, 9; July '50	6	
Green's Mountain Ash*.....	Oct. '50	27	¾
Thinleaf Alder* .....	Nov. '50	29	1
Just Lilacs, Claire Norton (Very Complete)*.....	May '51	6	4½
Garland Spirea* .....	May '51	41	1
Koreanspice Viburnum* .....	June '51	36	1
Thimbleberry* .....	July '51	2	1½
Shinyleaf Yellowhorn* .....	Aug. '51	15	½
Plants for Striking Effects.....	Nov. '51	24	1½
Chart of Shrubs (For All Purposes).....	Mar. '52	19	4
Rhododendrons for Colorado, H. J. Wagner*.....	May '52	30	1
Xanthoceras sorbifolium .....	May '52	13	
Select Your Shrubs Carefully, Helen Fowler.....	Oct. '52	34	¾
The Use of Hedge Material, Bill Lucking.....	Dec. '52	13	1
Hardiness and Desirability of Woody Plants for Landscape Use in Colorado (Good and bad qualities listed).....	July '53	24	7
Plants for the Arkansas Valley.....	Sept. '53	22	1½
Fallugia Paradoxa, Apache Plume.....	Nov. '53	11	
Camels, Kathleen Marriage (Shrubs for Dry Areas)*.....	Nov. '53	10	2
Colorful Maples for Colorado, Ruth A. Nelson.....	Nov. '53	40	1¼
Acer grandidentatum leaves.....	Nov. '53	40	
The Best Shrubs for Every Situation, George W. Kelly (Lists, Plans and Pictures).....	Mar. '54	24	5½
Some Honeysuckles, Claire Norton.....	May '54	16	1
The Most Beautiful Lilacs Available for 1954, Milton J. Keegan .....	May '54	20	1
Thimbleberry .....	June '54	16	
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Bush Cinquefoil .....	July '54	25	
Native Birch .....	Sept. '54	17	
Native Alder .....	Sept. '54	17	

SOIL

Soil Deficiencies and Malnutrition, Frances W. Hadley.....	Nov. '44	14	1½
Contractor's Soil, George W. Kelly.....	Nov. '45	22	1
Don't Bother With Sourpusses in Plants, M. Walter Pes-			
man (pH of Soil).....	Sept '46	23	½
Soil, George W. Kelly (Preparation of Soil)*.....	Jan. '47	14	1
Giants in the Earth, Juel F. Olstad (Fishworms).....	Sept. '47	11	2
Contractor's Soil .....	Jan. '48	14	½
Chlorosis—a Deficiency Symptom, A. F. Hoffman.....	Apr. '48	26	2½
Keep Peace With Your Soil, V. A. Tiedjens.....	May '48	17	½
Air and Soil Are Vital to Your Plant Roots.....	May '48	35	1
There is Life in the Soil, Thomas L. Martin (Importance			
of Micro-organisms) .....	June '48	18	2½
Dear Gus—Soil Preparation for the New Home Owner.....	May '49	20	3
Chlorosis, Chas. Drage .....	Sept. '49	35	½
Nature and Uses of Peat Moss, J. W. Dunfield.....	July '50	14	2
Sawdust May Increase Soil Acidity.....	Sept. '50	11	¼
A Tired Soil, M. Walter Pesman.....	Sept. '50	16	1
We Begin and End With the Soil.....	Feb. '51	2	½
A Soupcon of Metal.....	Mar. '51	8	½
What Does Peat Moss Do to Garden Soils, George W. Kelly....	Mar. '51	22	1
We Still Need Soil, Chas. M. Drage.....	Aug. '51	11	1
Water as a Growth Factor, Alex Klose.....	Aug. '51	20	4½
Prepare Your Soil First.....	Nov. '51	8	¼
After the Builders Leave, Then What? (Very complete).....	Feb. '52	6	1½
Advanced Soil Preparation.....	Feb. '52	14	½
Taming Your Clay Soil, M. Walter Pesman.....	Apr. '52	24	¾
The Key to Soil Fertility, American Fruit Grower.....	July '52	30	½
The Important Five Percent.....	Feb. '53	11	¾
Colorado Soils, Stanley H. Stolte.....	Apr. '53	21	1
Soil and the Microbe, Thomas L. Martin.....	July '53	6	4
How to Turn Dirt Into Soil, The Master Gardener.....	July '53	10	1
Why Make Compost, Mrs. Jan Schoo.....	Aug. '53	22	1
Vermiculite as a Soil Conditioner.....	Aug. '53	26	¾
Soil Fertility is Essential to Tree Growth.....	Aug. '53	26	¾
Danger—Trace Element Deficiencies, Mary K. Heller.....	Nov. '53	34	3½
Soil Conditioning, Dr. A. A. Hermann.....	May '54	38	2
The Most Important Fifty Percent, George W. Kelly.....	Aug. '54	10	2

SPRAYING AND DUSTING

Why Spray, George W. Kelly.....	Sept. '45	15	2
Weed-Free Lawns a Fact, Armin Barteldes.....	May '46	8	2
Dormant Spraying, Paul N. Morrow*.....	Nov. '46	18	2½
When Should Dormant Spraying Be Done? Paul Morrow.....	Nov. '47	7	¼
Spray Equipment and Chemicals, Chas. H. Behse.....	Mar. '48	12	1

STATE PLANNING

Colorado Landscape, S. R. DeBoer (Plant Growth Peculiar-			
ities)* .....	Aug. '44	4	¾
What Does Colorado Need, George W. Kelly*.....	Aug. '49	18	2
More Beautiful America.....	Feb. '49	21	½
All Colorado Is Our Garden, Carl Feiss.....	Jan. '50	18	3



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Spectacular Rock Formations Along the Hogback near Denver* .....	July '48	14	4
State Parks of Minnesota.....	July '48	19	2
The Recreation State Without a State Park, Harold W. Lathrop* .....	Aug. '48	16	2½
White Rocks, William A. Weber*.....	Oct. '48	6	3
The Need for State Parks, Harold Lathrop.....	Sept. '50	22	2
State Parks for Colorado, H. N. Wheeler*.....	Feb. '51	30	1¼
Time for Action, Pinon Grove*.....	Dec. '51	12	1½
State Parks Are Tourist Revenues, Robert M. Coates.....	Mar. '52	27	½
Vacationers Look to State Parks*.....	Oct. '52	31	1
The Trip to the Sand Dunes, Mesa Verde the Natural Bridges and the Natural Arches, Rosamond D. McLean....	July '53	38	1¼
The Old Rock Fort.....	Aug. '53	16	2
State Parks Advisory Council Appointed.....	Oct. '53	40	1
Ft. Collins Pinon Grove Receives National Attention, Colorado A & M News.....	Dec. '53	33	1

## TOOLS FOR GARDENING

Sprayers and Dusters for 1945, Earl Phipps.....	May '45	3	¾
Garden Gadgets .....	Jan. '49	27	¼
Garden Tools .....	Nov. '51	22	1¼
Lawn Tools, Wendell Keller.....	Aug. '54	40	2
Drink Well, Lawn, Drink Well, Don Steel (Aeration).....	Aug. '54	42	1½

## VEGETABLES

Gardening by the Month, Chas. M. Drage.....	Apr. '44	Ent. Issue	16
Victory Gardening in Colorado Is Different, M. W. Pesman.....	May '44	5	1½
Harvesting Vegetables, A. M. Binkley.....	Sept. '44	7	3
Victory Gardens .....	May '45	1	½
Winter Planning for the Vegetable Garden.....	Mar. '48	23	1
Safety in Vegetable Garden Insecticides, Armin Barteldes.....	Aug. '48	26	1½
Vegetables for Our 1953 Garden, Lula Rose Morse.....	Mar. '53	12	1
Have You Tried the Midget Vegetables? Guy Fox.....	Apr. '53	32	¼
The Colorado Vegetable Basket, Herbert Gundell.....	May '53	8	2

## VERSES

Christmas Poem, George W. Kelly*.....	Jan. '47	22	1
Simple Simon's Adventure, Len Shoemaker*.....	July '47	7	1
Raking Leaves, Mary F. Legler.....	Feb. '48	6	¼
March, Maud McCormick.....	Mar. '48	27	¼
Silly Syllioquy .....	Apr. '48	28	¼
Spring in the Garden, Maud McCormick.....	May '48	25	¼
Dirge Becomes Dance, Hillery Hecht.....	June '48	9	¼
Verdant Verses: Growth, Katherine Paull.....	Sept. '48	9	¼
Gardener's Lament, Ora Kehn.....	Sept. '48	28	¼
Why Grow a Garden.....	Sept. '48	31	½
Verdant Verses: The Tree, Katherine Paull.....	Oct. '48	28	¼
Verdant Verses: From Darkness to Light, Katherine Paull.....	Nov. '48	26	½
Verdant Verses: My Paragon, Katherine Paull.....	Dec. '48	5	¼

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In December, Maud McCormick.....	Dec. '48	11	1/4
A Bit of the Outdoors, Frank R. Oastler.....	Dec. '48	32	1
January, Maud McCormick.....	Jan. '49	2	1/4
Spring, E. L. Simpson.....	Mar. '49	7	1/4
Gifts of Love, Mrs. Ira Ullom.....	Mar. '49	19	1/4
My Garden, Mrs. Ira Ullom.....	Mar. '49	19	1/4
A Little Bird Told Me, Florence B. Tyson.....	Apr. '49	3	1/4
South Wind, Burton O. Longyear.....	Apr. '49	12	1/4
Daffy Dills, Len Shoemaker.....	Apr. '49	19	1/4
Shrubs, Elizabeth H. Pesman.....	Apr. '49	24	1/4
Oh, Gnats, Maud McCormick.....	Sept. '49	16	1/4
Death of the Leaves, B. O. Longyear.....	Oct. '49	21	1/2
I Like a Man.....	Jan. '50	Back Cover	
The Package of Seed, Edgar Guest.....	June '50	25	1/2
Timberline, Dora Lu Hill*.....	Sept. '50	30	1
My White Birch Tree, B. O. Longyear*.....	Feb. '51	10	1
My Garden, Gertrude Ballinger*.....	Sept. '51	2	1
The Rose, Laura S. Beck*.....	Sept. '51	35	1
October Symphony, Mary Sprigg*.....	Oct. '51	43	1
Green Fingers, Reginald Arkill.....	Feb. '52	30	1/4
My Garden—A Chinese Proverb.....	June '52	11	1/4
The Cottonwoods, M. B. Deem.....	June '52	19	1/2
Green Thumb? Dorothy Race*.....	June '52	Back Cover	
Achievement, Lois Kelly Law.....	Sept. '52	Back Cover	
It's Phlox, Robert E. Ewalt.....	Dec. '52	23	1
January, by Liberty Hyde Bailey*.....	Jan. '53	4	1
My Great Oak Tree, Liberty Hyde Bailey*.....	Feb. '53	7	1
March, by May Arno*.....	Mar. '53	8	1
My Old Rose Jar, Ora Kehn.....	Apr. '53	12	1/2
Litter-itis, William F. Clark.....	May '53	7	1
Written in March, William Wordsworth*.....	May '53	38	1
Over The Years, Anna Reynolds Moore*.....	June '53	7	1
Lilacs in Colorado, Jessie B. Hamman.....	Aug. '53	6	1
Winter—A Jeweler and Engraver, Compiled by Jas. B. Stewart .....	Mar. '54	1	1 1/2
Roses .....	Apr. '54	2	1
Spring, Compiled by James B. Stewart, Sketches by Pauline Steele* .....	May '54	12	4
May, By Margaret Janosky, Sketch by Pauline Steele.....	May '54	47	1/2
Trees Alone, Clara Aiken Speer*.....	July '54	3	1/2
Summer, Compiled by James B. Stewart, Sketches by Pauline Steele* .....	July '54	30	2
Autumn, Compiled by James B. Stewart, Sketches by Pauline Steele .....	Sept. '54	10	4

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Honeysuckles for Colorado, George W. Kelly*	May '45	21	3/4
Vines, George W. Kelly (Brief Lists)*	Jan. '47	8	1/4
Lists of Vines for the Plains	Mar. '47	24	1/4
Lists of Vines for the Arkansas Valley	May '47	13	1/4
Lists of Vines for Landscape Use in the Mountains*	Feb. '48	27	1/4
Tuberous Rooted Vines, George M. Fisher	Apr. '48	24	1
Care of Jackmanii Clematis, Helen Fowler	Mar. '49	23	1/2
Grow Gay Green Vines, Claire Norton	Oct. '49	23	1
Vines for Colorado (Lists with Descriptions)*	Feb. '50	23	1 1/2
Vines for All Purposes, George W. Kelly	Sept. '52	19	5
Native Clematis	Sept. '52	19	
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Purple Clematis	Sept. '52	21	
Silver Lace Vine	Sept. '52	22	
Clematis, Catherine Woods	Oct. '52	22	3/4
Hardiness and Desirability of Woody Plants for Landscape Use in Colorado (Good and Bad Qualities Listed)	July '53	24	7
Clematis, Gus A. Worker	Sept. '53	8	1/4
Plants for the Arkansas Valley	Sept. '53	22	1 1/2
Some Honeysuckles, Claire Norton*	May '54	16	1
Lonicera sempervirens	May '54	16	

## WATERING AND IRRIGATION

Watering Your Victory Garden, Wm. H. Lucking, Jr. (Essentials of Watering)	May '44	4	1
Why Water, George W. Kelly	July '44	2	1
Watering	June '48	20	1/4
Watering and Irrigating, Henry Gestefeld	Dec. '51	11	1
Better Gardens With Less Water, George W. Kelly	Aug. '52	23	1
How Many Drinks Can Your Soil Hold	Oct. '52	10	1 1/4
Lawngrass Irrigation, George Beach	Aug. '54	18	1 1/2

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What's a Weed, Drawings by Lorene Smith*.....	June '49	24	2
Edible Wild Plants of the Rocky Mountain Region*.....	July '50	6	8
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Peppergrass .....	July '50	10	
Common Dandelion .....	July '50	10	
Wild Lettuce .....	July '50	11	
Chickweed .....	July '50	11	
Common Plantain .....	July '50	11	
Purslane .....	July '50	11	
Common Mallow .....	July '50	11	
Common Milkweed* .....	Jan. '51	15	1/2
Why Weeds Survive.....	Sept. '51	21	1/4
Some Edible Weeds, V. O. Graham*.....	Nov. '51	20	1/2
What's a Weed?*.....	May '53	14	2
Bluebells Get the Gong, Max Bauer.....	June '53	20	1 1/2
Pincurls for Bindy, Daisy Hastings.....	Oct. '53	38	1
Infiltration by Undesirables (Halogeton), M. Walter Pesman.....	May '54	36	1 1/2
A Gruesome Story (Crabgrass),Robert W. Schery*.....	Aug. '54	26	2

**WILDERNESS AREAS**

Mount Goliath—Nature Study Area, Fred R. Johnson*.....	May '45	12	2
We Need Wilderness, Sigurd Olson.....	May '47	20	2
National Forest Wilderness Areas, L. C. Shoemaker*.....	May '47	22	6
Narraguinnep Natural Area, George W. Kelly*.....	July '47	12	3
Wilderness of the Flat Tops, Benj. M. Whitehall*.....	Nov. '47	24	3 1/4
Gore Range—Eagles Nest Wild Area, C. A. Kutzleb*.....	July '48	8	2
The Value of Wilderness, Sigurd R. Olson.....	May '50	28	1
Preservation of Living Museum Sought Through Nature Conservancy Bill .....	Oct. '50	21	1
Freedom of the Wilderness, George W. Kelly*.....	Nov. '50	16	2
Trail Riders Explore Maroon Bells—Snowmass Wilderness Area, George W. Kelly*.....	Nov. '50	18	3
We Need Wilderness, Sigurd Olson*.....	Mar. '54	34	2
What Worth Wilderness, Paul B. Sears.....	Oct. '54	26	1 1/2

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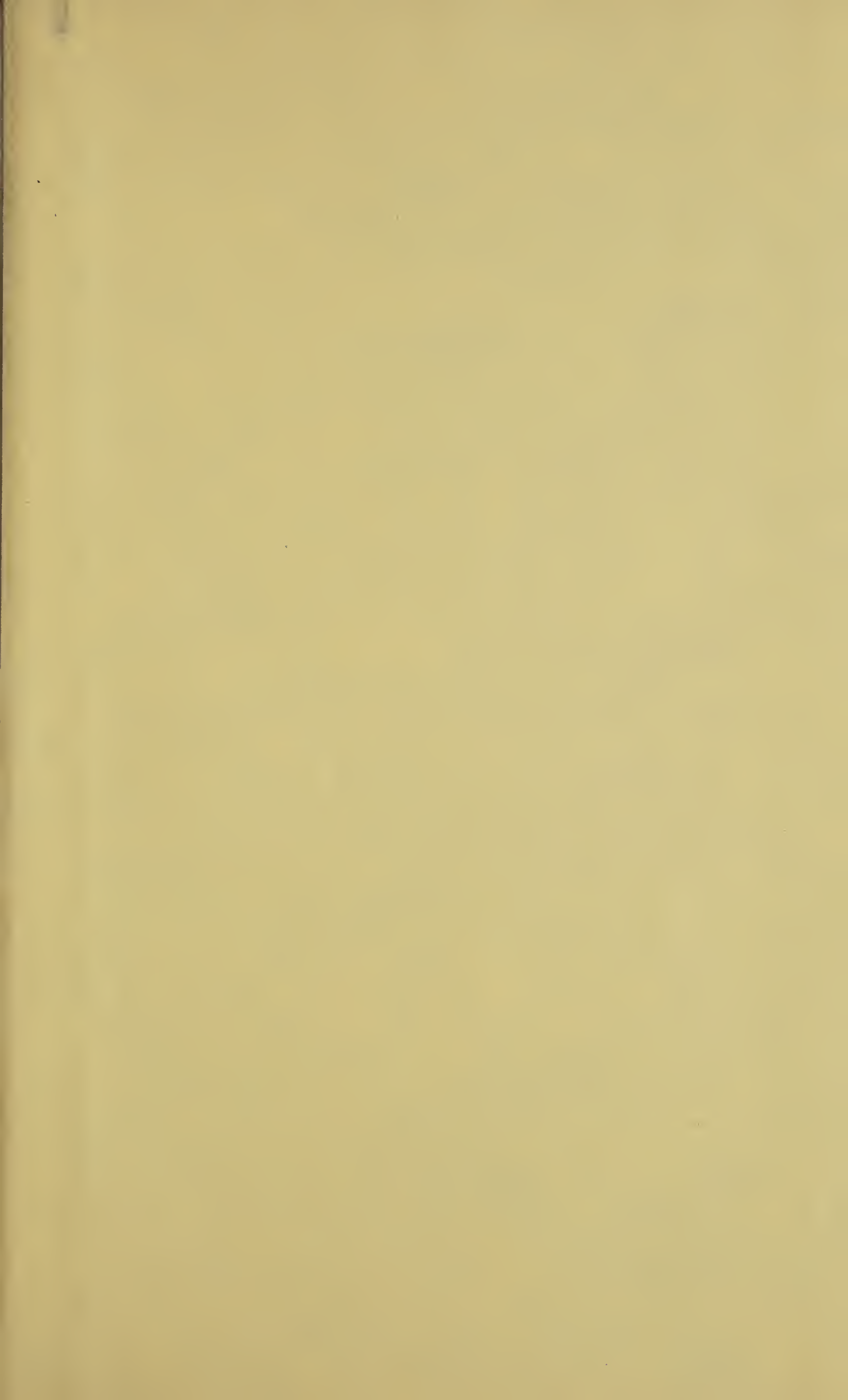














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